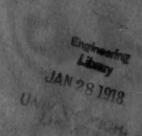
# THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY
THE BRICKBUILDER





DECEMBER 1917 VOLUME XXVII ~ NUMBER 6

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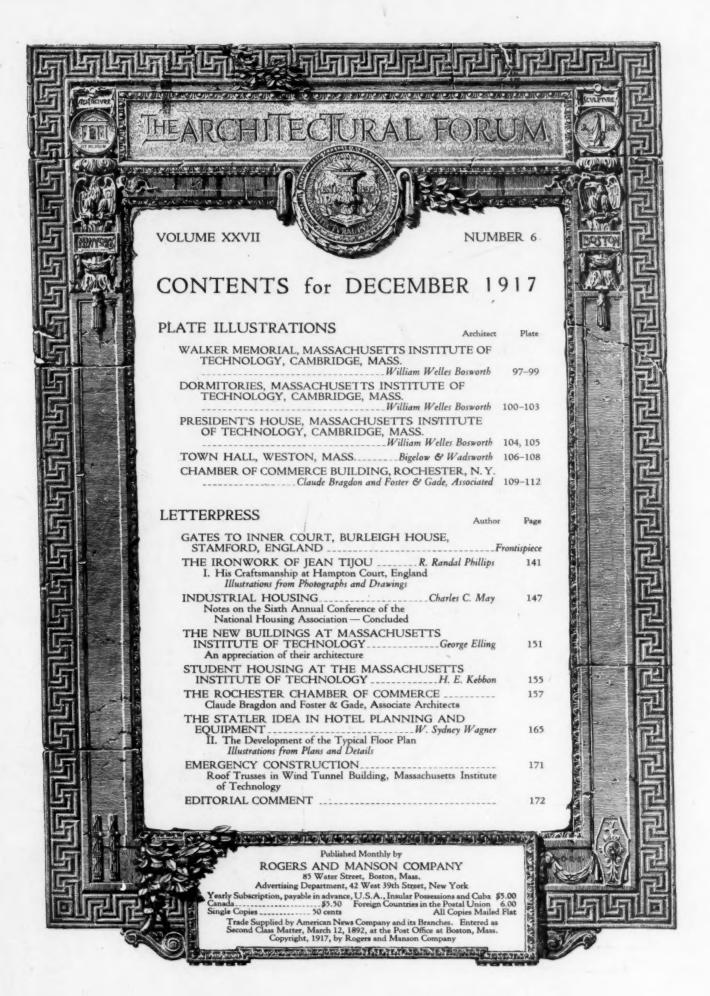
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GATES TO INNER COURT, BURLEIGH HOUSE, STAMFORD, ENGLAND DESIGNED AND WROUGHT BY JEAN TIJOU

# THE ARCHITECTURAL FORUM

### FOR QUARTER CENTURY THE BRICKBUILDER

**VOLUME XXVII** 

DECEMBER 1917

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### The Ironwork of Jean Tijou

I. HIS CRAFTSMANSHIP AT HAMPTON COURT, ENGLAND

By R. RANDAL PHILLIPS

John or Jean Tijou is not one of them. Of him we know very little, for he left no personal record of his life and achievements, nor had he any contemporary biographer. Many, in later days, have delved carefully into documents that might give the desired particulars, but we are still unable to say where Tijou was born or where he died; we are in complete ignorance as to his training, and though his name is associated with an entirely new manner of fashioning ironwork in England, we cannot even determine with certainty whether he was a practical smith or not. Yet, if we know so little of the man himself, we have abundant authenticated examples of his work, and these are sufficient to warrant our placing him in the forefront of craft workers.

In tracing his career it may be assumed, to begin with, that he was a Frenchman, despite the fact, that the record of French craftsmanship in iron makes no claim for him. At some date, unknown, he left his native land for Holland and found employment with the Prince of Orange; but there is no definite ground for asserting that he was among those Protestant refugee artists who fled from France after the Edict of Nantes, and it is equally doubtful to assume that he was not a Protestant refugee because his daughter married Laguerre, a Roman Catholic. There would appear to be no doubt, however, that he was no mere artisan, but a man of some position and influence, such as would recommend him to the service of that prince who became William the Third of England. Daniel Marot was another artist who came over in the royal retinue from Holland and brought a new manner of design with him. There is, indeed, a resemblance between Marot's designs for ironwork and Tijou's that leaves one with the impression that Tijou was largely influenced by

The first definite date which can be set against Tijou's name is 1690, the year following the arrival of William and Mary in England, that being the date for Tijou's bill for six iron vanes and the iron-

F some men who have played a prominent part work to the balcony of the Water Gallery at Hampin the world of architecture and craftsman- ton Court, which little building was specially built ship we have an intimate knowledge, but for the Queen's occupation while Wolsey's buildings on the east front were being pulled down and Wren's State Apartments substituted for them. From this time onward for many years the palace accounts include entries for ironwork supplied by Tijou. Hampton Court, in fact, shares with St. Paul's Cathedral the claim of possessing the bulk and the best part of Tijou's craftsmanship; but it is a curious fact that though Wren was the controlling architect in each case he makes no single reference to the designer of the ironwork, and equally strange is the fact that Tijou in the book of designs for ironwork which he published a few years after his arrival in England - ironwork supplied, for the most part, for buildings designed by Wren - makes no mention at all of the great architect. It has been assumed from this that there must have been some mutual antipathy, that Tijou's comparatively florid manner of design was not approved by Wren, and that an estrangement grew up between them; but apart from the omission of a reference on either side, there is nothing to support the assumption, and in the case of Wren, knowing the fine broad character of the man, it might well be argued that such an omission would have been too petty.

> The work at St. Paul's begins with 1691 and goes on for quite fifteen years, after which time we entirely lose track of Tijou and can find no record to tell us what he subsequently did and where and when his end came.

Besides Hampton Court Palace and St. Paul's Cathedral, Tijou did ironwork at Chatsworth. Dravton House, Burleigh House, and probably a number of other country seats, while there still exists examples of his art in other buildings, like the gates to the Clarendon Press, Oxford, which may be claimed as his. All of which would lead us to assume that Tijou must have made a considerable fortune, though the point has been raised, in view of Tijou's repeated requests for payment for work carried out at Hampton Court and St. Paul's, that he spent his money as fast as he made it, leaving him in an unfortunate financial position during his declining years.

His book of designs was published in London in 1693. On the title page it bore, in French as well as English, the following: "A new Booke of Drawings Invented and Designed by John Tijou containing severall sortes of Iron worke as Gates, Frontispieces, Balconies, Staircases, Pannells, &c. of which the most part hath been wrought at the Royall Building of Hampton Court, and to severall persons of Qualityes Houses of this Kingdome all for the use of them that will worke Iron in Perfection, and with Art"—the last sentence leaving us in no doubt as to the author's own high estimate of his value. There are nineteen plates in the book, each bearing Tijou's name as designer, and Van Somer's and other artists' names as engravers, the frontispiece being engraved by Tijou's son-in-law, Louis Laguerre. There is no indication on the plates as to the buildings for which the ironwork was designed, but in the majority of cases it is easy to determine this by comparison with the executed work still existing, and in making this comparison one cannot overlook the fact that, with certain exceptions, in particular the entrance gates at Burleigh House,

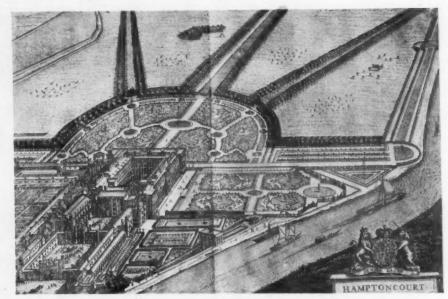
near Stamford, - there is a distinct modification in the executed work, an elimination of the overflorid, and a general simplification and improvement. There are no facts to explain this, but it may well be contended that in the case at least of Hampton Court Palace and St. Paul's Cathedral, Wren's sobering influence came into play - and it is on this hypothesis that, imagining a cause of disagreement when the architect altered the craftsman's designs, the idea of an estrangement between Wren and Tijou is supported. A study of the book of designs leads one further to the question as to what exactly were Tijou's qualifications. Undoubtedly he possessed the talents of an artist, but was he actually a craftsman, or only a designer for craftsmen? If the former, then how was it that his designs show work which it was practically impossible for a smith to execute in iron? Was that perhaps a mistake of the engraver's? These are questions that cannot be answered with certitude. The nearest approach to the truth would appear to be that Tijou was an artist-craftsman who excelled especially in embossing, and that he himself executed the finest parts of his ironwork, - such as the masks that are so distinguishing a



Great Gates Between Gardens and Park, Hampton Court Palace

feature, — leaving the remainder to be carried out by the men under his control. The embossing in Tijou's ironwork, as, for example, the characteristic cocks' heads in the main gates on the east front of Hampton Court Palace, or the round plaques and the scroll leafage on the choir gates in St. Paul's Cathedral, is remarkable; it has, in fact, never been excelled, and rarely equaled, in English craftwork in iron.

At Hampton Court Palace, Tijou did an enormous amount of work, chief among which are the gates to the central entrance on the east front, the splendid balustrading to the King's and the Queen's staircases, and the celebrated screen in the gardens. This last has been the subject of much contention. It now stands at the river end of the Privy Garden on the south front of the Palace, and is commonly supposed to have always occupied this position - an assumption supported by Kip's view of 1708 (here reproduced), which shows the screen in this same position. Mr. Starkie Gardner contends, however, that so important a piece of ironwork was never in-



Kip's View of Hampton Court Palace, 1708, Showing Screen in Fountain Garden, Now Privy Garden

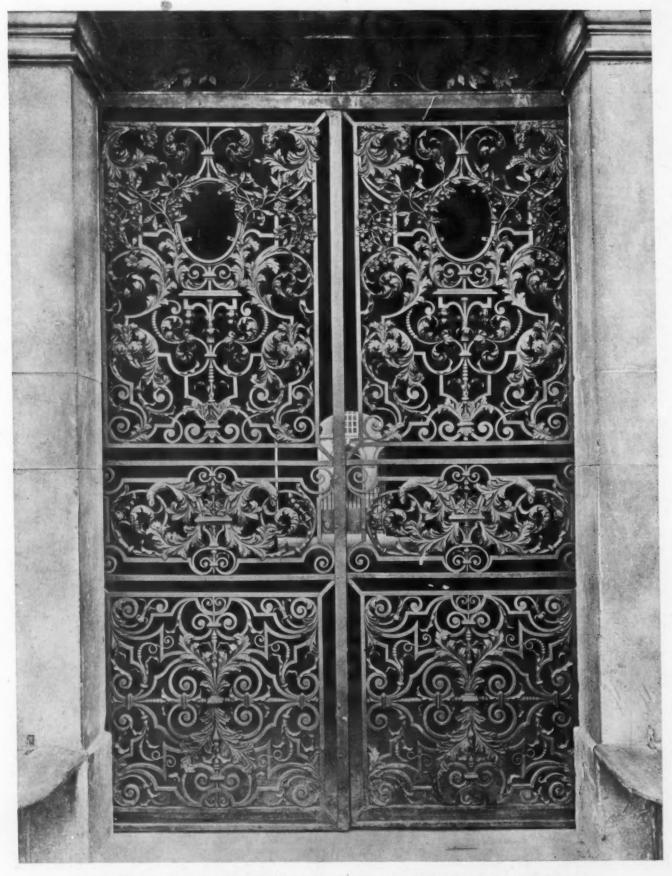


Design for Hampton Court Screen from Tijou's Book



Panel of Screen in Privy Garden, Hampton Court Palace

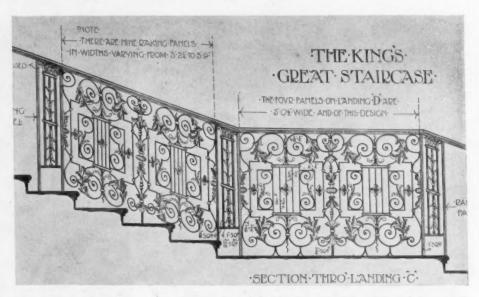
tended for a comparatively unimportant place, but rather that the screen was designed and erected in the original Fountain Garden in front of the new State Apartments. He says: "The Fountain Garden was redesigned by Daniel Marot, Architecte de sa Majesté Britannique, and considerably enlarged in 1699, when Talman was required to make estimates for lead pipes, £987 14s, and for the outer row of eight additional fountains, and for 1,442 feet of iron rails to be done on both sides the Fountain Gardens £2,132 16s. The screen had no place in the new design and must then have been removed to the second position at the



CENTER GATES, MAIN ENTRANCE, EAST FRONT HAMPTON COURT PALACE, ENGLAND DESIGNED AND WROUGHT BY JEAN TIJOU

end of the Privy Garden, with one fountain, which extended from the south front to the river. Sutton Nicholl's engraving of 1695 makes it quite clear that it was not in the Privy Garden in 1694, when the Queen died. The great gates were not removed with the screen, but occupy in Kip's view a similar position in the new boundary line and still separating the two broad walks from their continuation as avenues in the park." The screen consisted of twelve panels about 9 feet square, separated by pilasters and having gates at the center. It was taken

back to the Fountain Garden in 1736 and afterward fell into a bad state of repair. In 1865 the panels were removed to South Kensington and distributed to various museums, but ultimately they were brought again to Hampton Court and set up in the Privy Garden. In the course of these wanderings the ironwork was considerably restored, but the general design was preserved, and we may still see the actual handwork of Tijou in them. The gates on the east front of the palace have experienced no such treatment as the screen; they are in a protected



Tijou's Design for Hampton Court Staircase from Baily Murphy's "English and Scottish Ironwork"

position and are in an excellent state of preservation. In point of good design and fine execution, they must be counted among the very best work Tijou ever produced, especially the central pair of gates which are magnificently wrought.

The claim was made that a certain Huntington Shaw was the real designer of the Hampton Court screen, on the strength of the following inscription on a tomb in the churchyard at Hampton: "Here lieth ye Body of Huntington Shaw of Nottingham who died at Hampton Court, the 20th day of Octo-



Gates at Main Entrance, East Front of Hampton Court Palace





Details from Gate at Clarendon Press, Oxford

ber 1710 aged 51 years. He was an artist in His way, he designed and executed the ornamental Iron work at Hampton Court Palace." This claim, however, has been entirely disposed of by Mr. Garraway Rice, who made a searching examination of the matter. There is no mention of Huntington Shaw in the old Treasury Papers, although the names and wages of all the artificers engaged on the works, from the great artists, such as Cibber, Gibbons, Verrio and Laguerre, down to the commonest laborers, are frequently mentioned. "And this suspicion was confirmed when among 'A List of Debts in the Office of Works in 1701,' preserved in the Record Office, an entry was found under the heading of 'Hampton

Court Gardens,' of £1,982 0s 7d due to John Tijou, Smith,' the conclusion being that in Tijou we must recognize the real author of these magnificent works of art." It was this search that, incidentally, led to the discovery of Tijou's book of designs which effectually disposed of the claim made on behalf of Huntington Shaw, while a close inspection of the inscription on the tomb revealed the fact that the last words, "he designed and executed the ornamental Iron work at Hampton Court Palace," were a modern addition having been done when alterations were carried out at the church in 1830. To Tijou is due, therefore, all the credit for having designed and fabricated the Hampton Court ironwork.



Detail of Center Gates, East Front of Hampton Court Palace

#### Industrial Housing

### NOTES ON THE SIXTH ANNUAL CONFERENCE OF THE NATIONAL HOUSING ASSOCIATION — Concluded

By CHARLES C. MAY

side their actual order on the program. Thus, Mr. Allen's talk on cheapening the workman's house has been reserved to be taken up with other papers relating to the individual house and its construction. Leading to such consideration, Mr. Magnusson's paper on "What Employers Have Done to House Their Employees in the United States" packed into small space a tremendous amount of information. It presented in condensed form some of the results obtained by the U. S. Bureau of Labor Statistics during a year's investigation covering coal, copper, and iron mines, steel companies, and the principal towns where are located the great plants for the manufacture of textiles and explosives. In all, the inquiry covered 213 companies, employing in the aggregate very nearly a half million workers.

He placed the first small beginnings of industrial housing as contemporaneous with the rise of the factory system; such beginnings, for example, as are marked by the dates 1791, at Paterson, N. J., and 1820, at Lowell, Mass.

With all its marvelous progress, town-planning has not even yet become the rule in industrial developments, though more frequently evidenced among factories than in mining settlements. An absence of restrictions, the inevitable tendency toward uniformity, a lack of growing things, and a standardization of types are the outstanding characteristics of these developments as a whole.

Classifying the entire number of dwellings considered (53,176 in all), it was found that frame construction predominates, two wooden houses to every one of brick, the nearest competitor; four-room houses predominate over five and six room at the same rate, and the relation is nearly so for single houses over double and row or terrace groups. It may, perhaps, cause surprise to hear that almost 70 per cent of all these houses rent for less that \$8.00 per month, but certainly not to know that in only two villages were vacant houses to be found.

Company houses include, of course, many degrees of desirability in planning and in provision for sanitary, wholesome living. We can judge somewhat of these classifications from the fact that 35 per cent of all houses under consideration were quite devoid of any modern conveniences; that 20 per cent had none except running water, and that only 15½ per cent were fully supplied with water, light, sewer connection, toilet, and bath.

Since the employer's responsibility for his work-

of simplification we have taken some liberties in considering certain papers outside their actual order on the program. Thus, r. Allen's talk on cheapening the workman's house is been reserved to be taken up with other papers lating to the individual house and its construction. The seading to such consideration, Mr. Magnusson's later on "What Employers Have Done to House" men's housing and social condition is more easily recognizable in mining companies than in any others, it would be expected that they would lead all classes of industry in such activities. As a matter of fact, they are surpassed by the cotton mills. At the other end of the list are the gold mines, though the reason is not altogether clear for so extreme a discrepancy between this and other sorts of mining.

In the matter of general costs of industrial developments, Mr. Magnusson cited as a fairly typical example that of a company which had housed 42 per cent of its employees at a cost which was 28 per cent of its average annual payroll for five years. A special case of another development where higher grade houses were provided with some architectural varieties and equipped with modern conveniences, showed a complete reversal of these figures—the cost was 52 per cent and the number housed, 28 per cent.

Based upon the first case, a rough working rule of thumb would state that to house all its employees a company must be prepared for an expenditure of not less than two-thirds of its annual payroll. It is fair to say, however, that this is probably considerably below the minimum for present conditions.

Returns on the company's housing investment must be correspondingly variable. They range from a maximum of 20 per cent in some southern mining communities down to 6 per cent for certain steel concerns, the percentages in both cases being gross; for eight of the coal companies reported, the average gross return was 11 per cent on a total inventory value of two and three-fourths millions. Putting the several sets of figures together, one sees the returns varying inversely with relation to provision of more than the bare essentials of housing.

General testimony from the whole list of employers brought out as conclusions: that all were satisfied with the housing experiment, though on somewhat different grounds, and sometimes in spite of its being unprofitable; they had satisfied themselves that housing of employees secures better workmen, reduces labor turnover, attracts married men rather than floaters—that it is, in short, a potent factor making for stability in the industrial relation.

The discussion of this paper drew forth further testimony to the universality of this vexed question of "turnover" in labor. Mr. Kennedy, of the Youngstown Sheet and Tube Company, stated that careful investigation over a year's period had proven that the "turnover," that is, the shifts in the payroll, owing to short terms of employment, amounted, in this concern employing 15,000 men, to 187 per

ceeded by other companies. Figures were quoted showing 40,000 men actually employed in order to get a continuing force of 10,000; a steel company admitted a shift of one-third of its total staff per month. Here is no sign of a loss of labor's mobility! Consider, then, the economic loss of such turnovers. The steel company quoted, calculates that it costs \$30 to place and train a man; in another class of industry the charge runs from \$20 to \$80, according to the grade of service. The next step in investigation, which as yet no one seems to have taken, would be to discover what proportion of this vast loss could be eliminated by the provision of proper housing. This yearly saving, capitalized at 5 per cent, would, we venture to prophesy, show a surprising result as to the amount that might profitably be invested in the company's housing program.

During one of the earlier discussions, Mr. Armstrong of Toronto made the assertion that no housing in England had yet reached the lowest strata of society, except insofar as, by reaching the next stratum above, it had relieved the downward pressure. Considering what we have been wont to think of England's achievements in the field of housing, such testimony inclines one to brush aside the non-essentials and to beg for a statement of the irreducible minima. For many years we have been struggling with this problem, always approaching it from the top, and always we have reached, not the man we have aimed for, but the one next higher up. Now for once, at least, let us approach from the bottom and see what may be the result.

Some such reasoning was the basis upon which was built the paper by Mr. Leslie H. Allen of Boston. He began by summarizing the prime essentials "of a modern city house" as follows:

Watertight roof, walls, and floors.

Bedroom for parents.

Bedroom for male children, if any.

Bedroom for female children, if any.

One or more living rooms for cooking, eating, and general day use.

Private toilet room with sanitary water closet and sewer connection.

Suitable heating arrangements.

Running water supply fit for drinking.

Kitchen sink with waste connected to sewer.

Uninterrupted daylight and ventilation through windows in every room.

A second list embodied features considered essential by the American family:

Cellar.

Closets.

Bath tub with running water.

Window screens.

Separate parlor.

Finally were listed those features which all want

cent of the total on the payroll. This record is exceeded by other companies. Figures were quoted showing 40,000 men actually employed in order to

Porches and piazzas.

Lavatory bowls.

Hot water supply to bath and bowls.

Window blinds.

Window shades.

Dining room separate.

It will be noted that a cellar is not classed by Mr. Allen as a sine qua non, nor does he qualify his stand by omitting it for warmer climates only. On this point he said: "We are told that the family needs a cellar for the storage of coal and canned fruit, etc., and also that it costs no more after the foundation walls are put in to build it than to omit it. In investigating the contents of cellars in houses occupied by unskilled laborers, I have never found large supplies of food or fuel. The laborer is too poor to buy more than two or three hundred pounds of coal at a time, and never lays in stocks of food in advance; instead of this we usually find a miscellaneous assortment of most unsanitary rubbish and junk which is not only undesirable, but constitutes a serious fire menace. Statistics show that over 80 per cent of dwelling house fires start in the cellar in such rubbish piles as I have described. The argument that it costs no more is nearly true, where sand and gravel soils are encountered; but in clay or other hard digging the extra cost of digging the cellar mounts up considerably. Cellars are not needed for furnaces where the tenant cannot afford the fuel for them, but derives his heat from his kitchen stove."

Proceeding with a plea for simplicity and straightforwardness in design, Mr. Allen made the statement that, "Any attempt to beautify the elevation has to be paid for." We believe that this needs some further definition of the term "beautify." Would not "embellish" be a more exact word? We should not then debar as expensive that care for proportion, and disposition of void and solid, which, be the several elements the plainest of the plain, are fundamental in all architectural studies. It was probably this idea that Mr. Allen had in mind, for he went on to say, "Where it becomes a question of sacrificing necessary floor space or internal convenience for outside embellishment, the tenant, were he given a chance to vote, would almost invariably choose the interior necessities rather than the external luxuries or the alternative of higher rent."

This is unquestionably sound, and it is decidedly apropos in that it calls direct attention to the confusion that so often obtains in discussions of this problem of the minimum house. Too often the alternatives are not between the quaint, idyllic cottage and the plain, unadorned dwelling; they are between the plain, but sanitary and decent dwelling,

and nothing at all — that is to say, leaving the lowest paid worker to live as heretofore, in squalor.

Pressing on where logic leads, Mr. Allen made a plea for the flat roof, or at least an adequate attempt to combine architectural value with its unquestioned advantages in cost of construction and upkeep; a plea for the terrace type of attached house for the low paid worker, in cases where land cost becomes a prime factor; for the provision of four- and five-room houses for that minority of families for whom the sixth room forms only an added burden; for a small, judicious appropriation for trees and shrubs, in order that there may be less discrepancy between executed work and the perspective decoy, and for the application of sane town-planning principles to the selection and treatment of the development site.

Attention was again directed to the heavy burden laid upon low-cost construction by prevalent building regulations. This is true of concrete construction probably to a greater extent than in other branches, but here the unbalanced, almost ludicrous provisions of certain localities form a very serious penalty against the honest builder. Is it necessary and unavoidable that our whole standard of lawful building be based upon the principle of protection against the jerry builder and the crook? Is there not some way, by arranging special inspection provisions, or by making the responsibility of the contractor for his building a continuing one, that the building laws may be newly based upon the assumption of the builder's good faith, rather than upon a usually unjust assumption of his dishonesty?

Mr. Richard A. Dana, Jr., who contributed a paper on "The Best House for the Small Wage Earner," is frankly an advocate of the semi-detached, or group house. "The one-family, free-standing house," he says, "is now too expensive to build, heat, and maintain for rentals under \$20 a month." Mr. Dana, by the way, performed a distinct service and, we hope, set a precedent when he thus specifi-" On cally set limits to the scope of his paper. lots 25 feet wide and under," he goes on, "the narrow spaces between these houses are usually damp, dirty, and ugly. The houses are frequently so close together that the middle of two adjoining houses look directly across at each other with no decent amount of air or privacy."

After enumerating the disadvantages of the two-family house (one family living over the other), the contrasting merits of the two-family, semi-detached type were summarized as follows: "It is more economical to build per family than two one-family houses, as the party wall between the two families is less expensive than two outside walls, and also each house is easier to heat in cold weather. By economical planning one chimney and one line of plumbing can be arranged for both families" (assuming that these houses are built for rental rather

than for sale). "By having the scheme only two rooms deep, no room looks directly into another house, but looks either out toward the street or toward the back yard. Each family has three sides of their house open to the light and air, so that they do not feel shut in. Furthermore, this two-family, semi-detached house is much more pleasing in proportion than the one-family, as the length is greater than the height, and the whole building sits on the ground in a comfortable, restful way."

"Houses in rows, three to eight in a group, are cheaper still to build," he goes on. "These compositions of eight houses have great artistic possibilities on the exterior, especially if the end units are treated in a different way from those in the middle."

In commenting on construction, Mr. Dana recommended omission of all gutters and leaders; use of casement instead of double hung windows; low ceilings, with window heads well up to them; smooth painted plaster finish; narrow trim for doors and windows, unmoulded, but with rounded edges; standardization of plan into a few types, with variety gained by grouping and color treatment of the exteriors, as well as by different roofing schemes.

Mr. Dana's plea for standardization was met by an almost immediate response in Mr. Conzelman's paper on "Ready Made Houses," which, while including by implication the frame house of that description, dealt particularly with standardized houses constructed with precast hollow blocks of reinforced concrete. His paper was supplemental to that read by Mr. Atterbury at last year's conference, dealing with the same principle of construction as exemplified in Mr. Atterbury's experiments and demonstrations under the auspices of the Sage Foundation.

The firm of which Mr. Conzelman is a member has successfully applied the principle of building with precast, factory-made concrete blocks of large size to many classes of work, including train sheds, elevators, factories, round houses, railway stations, etc., but not, up to the present year, to houses. In this lies the special significance of the work described by Mr. Conzelman. Excepting only the group of houses built by Mr. Atterbury in 1913, the development for the Youngstown Sheet and Tube Company at Youngstown, Ohio, is the first attempt in house building to push to its logical conclusion the principles of standardization and wholesale manufacture by factory methods. We have had hints of progress along these lines in the tremendous improvement made in the manufacture of stock doors, windows, dressers, etc., but never a bit of help in the erection of the constructional shell of the building itself.

The ideal for the manufacture of these standardized concrete sections, which weigh up to about six tons, involves, of course, a permanent factory plant, completely equipped to provide all those advantages of continuity and organization which characterize the well managed factory in any line of quantity production. The limiting factor in approaching such an ideal for large sized, concrete blocks is transportation, and in an increasing degree with the enlargement and increased weight of the building unit. For the present operations at Youngstown a compromise is effected by the use of a more or less temporary plant, giving, however, an approximation of the desired factory conditions.

Mr. Conzelman showed slides which were extremely interesting both in their portrayal of the project as planned on paper and in the beginnings of its execution. Mr. Allen, in his own paper, registered as his opinion that the excessive cost of equipment for casting, handling, and setting would prevent the use of precast concrete blocks for workmen's houses. Mr. Atterbury and Mr. Conzelman, on the other hand, are supremely confident not only that it is commercially possible, but that its demonstration will be conclusively effected within the near "My conclusion," says Mr. Conzelman, future. "is based on the experience gained during the last ten years in the construction of practically all types of reinforced concrete structures, all of which were constructed by unit methods. It has been fully demonstrated in this work that unit methods can more than hold their own in a field where competition is very keen. The problems met with in house construction are not so difficult as those that have been met with and overcome in the commercial structures referred to. It therefore follows that if housing contracts of sufficient magnitude can be secured, the construction can be readily accomplished by these same methods." Inasmuch as this method of construction is far and away the most radical and thorough going proposal looking toward application of big business methods to small house building, and inasmuch as it seems that the principle is now about to receive conclusive tests, progress will be watched with interest.

The other form of ready-made house, the frame building shipped from the factory in lengths cut to fit together like a picture puzzle in three dimensions - this type of house had its first hearing in a housing conference. It has heretofore been the inclination to adopt a patronizing attitude toward the concerns that advertise this product, and, in truth, many of them have hardly deserved serious consideration. But while they have been ignored, they have grown prodigiously, until now it would seem that they must be taken account of. One concern has already shipped, set up, and delivered six hundred of these houses to the English government; a repeat order of the same amount is contingent only upon shipping facilities. Unquestionably these companies are progressive; when transportation charges run high, they establish cutting mills all over the country; when the need arises, they es-

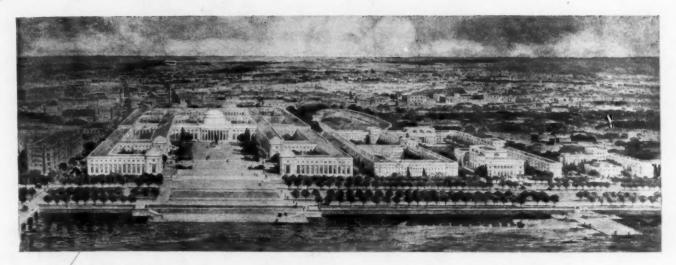
tablish financial connections likewise; to accommodate the house owner they develop a general form of contract to include all the sub-contractors; and finally, perhaps most significant of all, they are turning to the architect and to the town planner for expert advice, in order that their product may be something more than "Stock Design No. 357-A."

Wednesday morning's first section meeting was devoted to a symposium on housing famines and what several cities have done to cope with them. Other papers must be passed without comment or quotation, and of those on housing famines we may mention only that of Bridgeport, Conn.,

The Bridgeport Housing Company, formed to cope with perhaps the most acute of this country's housing famines, has already to its credit in this, its first year of operation, an apartment building housing 39 families, a group of terrace cottages now partly occupied and accommodating 139 families—these within the city proper, and outside but within easy trolley range, two new community groups of single family detached houses. These several developments are for the higher grade of skilled mechanics. The corporation has now under consideration a program for the common laborer,—a terrace group of 15-foot units, only 22 feet deep, with yard at the rear. A maximum of \$16 per month would be charged for four rooms and a bath.

The aim of the Bridgeport Housing Company is to bring about a condition where mortgage bonds of workingmen's homes should be as salable and as exchangeable as those of any public service corporation or industrial—in other words, to use the words of Mr. Ham's paper, to make them "liquid capital." This he believes practical through a co-operation of the manufacturers, public service corporations, and the financial interests. His recommendation to the National Housing Association is that it "appoint a committee to outline a scheme of financing which would be national in its scope, and have for its fundamental purpose, making liquid funds invested in the homes of the people."

Such, in very incomplete and hurried résumé, are some of the more salient points of the Chicago Housing Conference. We have omitted a description of the city-building that has given housing to our new national army; we have made no mention of the masterly presentation of the Zoning problem by Mr. Lawson Purdy; we have not quoted from the splendid speeches by Chicago's representatives upon her own housing problems; nor have we spoken a word of appreciation for the kaleidoscopic motor view of Chicago's playgrounds, her parks, her boulevards, and the general spacious way she does her planning. For all these, and many other matters, we must make use of the architect's perennial note, "See Future Detail," which in this case refers to the forthcoming volume of the Proceedings of the Conference.



### The New Buildings at Massachusetts Institute of Technology

AN APPRECIATION OF THEIR ARCHITECTURE

By GEORGE ELLING

A GLANCE at the block plan of the Massachusetts Institute of Technology group suffices to show that the land was apportioned to an educational group on the west and a students' group on the east. The bird's-eye view shows how the lines of the educational group are to be carried along into the students' group to make one composition of the whole mass of buildings as seen from the Boston water-front.

A light and fine Roman brick is being used with limestone trimmings so that there will be no break in the color value, and though the scale of the openings of the students' group naturally produce a much finer spotting, towers at certain high points are carried up over gateways and at corners of the dormitories so that the measure of height in the educational group is recalled. Another strong

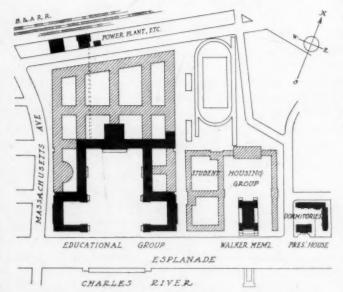
connecting link has been obtained by repeating the size of the minor order of the main court pavilions in the façade of the Walker Memorial. This order is approximately 30 feet high. Greek Ionic in the pavilions, the order has been pleasantly converted at the Walker Memorial into a sort of Pompeian Doric. The treatment of the Walker Memorial frontispiece will further serve to unify the two groups by its strongly emphasized lower story and subordinated attic, which is the characteristic motif.

The first dormitory having been built synonymously with the President's house, was made to form a background to shield the latter from the factories and commercial structures in the rear. Thus a pleasing little composition was produced with a garden enclosed between the two buildings and elevated by high walls above the surrounding grades so that passers-by may not see in. The students, on the other hand, enjoy glimpses of the garden from their windows, and the sentiment of relationship between the two buildings and the garden suggests agreeably the real relationship of the students to the President; for Dr. and Mrs. Maclaurin keep closely in touch with them, each student being invited several times during the winter to the President's house for social evenings.

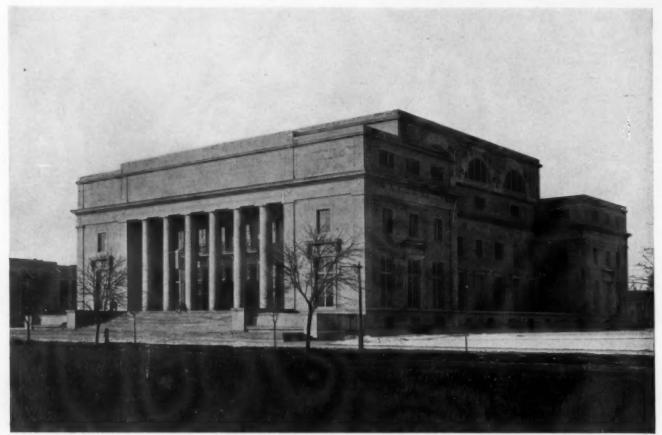
The residence was presented to the Institute by

Mr. Charles A. Stone and Mr. Edwin S. Webster, who have often said that they owed their business success to their training at the Institute. The buildings were built by their organization at cost, and it was of inestimable value to the Institute to have the benefit of the disinterested cooperation of two such loyal alumni.

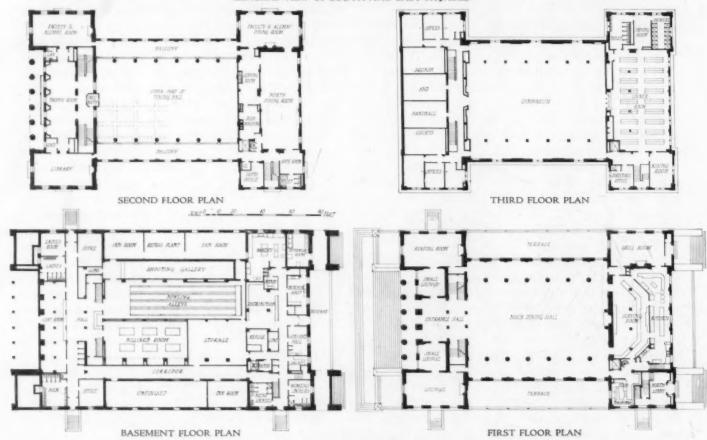
The building seems to be ideal for its purposes. Its lines preserve the fine simplicity of the educational buildings, with the same motive of composition — a high first



Plot Plan of Complete Group Portions Shown Solid Are Built, Those Shaded Are Future Buildings



GENERAL VIEW OF SOUTH AND EAST FAÇADES



WALKER MEMORIAL, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
WILLIAM WELLES BOSWORTH, ARCHITECT

story with subordinated windows above. A tower room on the flat roof gives the domestic air of many of the Italian villas, and at the same time harmonizes with the silhouette of the dormitory in the background. Boston viewed from the terraced roof, or second story windows, particularly at sunset, when Beacon Hill glows in reds and violets behind the blue water of Back Bay, with the gold dome of the State House reflecting the sun like a burning ember, makes an ever changing panorama of beauty, as fine as any town and water subject in the world, not even forgetting Whistler's impressions of Venice. The arches and towers of the bridge connecting Boston with Cambridge are especially effective from this point of view. Bunker Hill monument and the tower of the Customs House make fine touches of verticality in contrast with the prolonged horizontal lines of the masses of houses stretching toward the Back Bay district. The house is planned for the double purpose of entertaining students as well as a dwelling for the President. Connection is made from the front door directly with coat rooms in the basement, and the stairs are so planned that guests are then conducted into a large reception hall. The spacious living room faces south and west, while the dining room is placed at the eastern corner, and the President's study occupies the space between this and the entrance vestibule. A little private entrance is effected from the vestibule into the study. The stair is a spiral, of graceful proportions; the living room is finished in Italian walnut with a stone mantel and beamed ceiling; the reception hall and dining rooms are paneled in oak; while the entrance vestibule is of Caen stone with stair of Botticino marble. The house is completely equipped with modern appliances, including electric laundry machines, dumbwaiters, and cooking appliances.

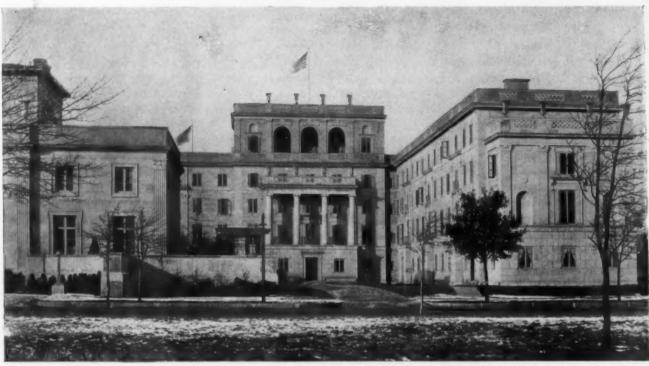
The exterior of this interesting building is unique. The high walls of the elevated garden are recessed in a semicircle toward the front entrance, thus producing a charming air of dignity and ele-The doorway has been treated with just the right amount of carving to give it grace and refinement. This is characteristic of the whole house in fact, with its flat fluted pilasters and lovely caps of a Pompeian Corinthian character. Two delicate elongated vases surmount the pilasters at the sides of the central bay and connect the composition with the tower pavilion on the roof. The air of the mansion as a whole expresses a delightful balance of sobriety and lightness of touch, held in fine reserve, which produces a most pleasing feeling on the mind of the careful observer.

The same spirit is felt in the exterior treatment of the dormitories, though the fact that the pilaster and column capitals and ornaments are not yet carved, leaves something still to be desired; and of course one looks forward to iron fences and planting. The

grouping of the tower with its columned portico is most picturesque and satisfying. Here again the harmony has been skilfully retained between the spirit of the architecture of the educational group, so severely classic, and this free and light adaptation of classic lines and detail to a building well expressing the character of a home for students.

In the Walker Memorial one finds a similar harmony of architectural style and character, but handled with a more robust and monumental feeling, as the uses of the building would naturally require. One senses at a glance the gymnasium, with its large arched windows at the top; the great dining hall on the main floor in the center, with its outdoor terraces between the recessed spaces of the projecting corner motifs; and chiefly, of course, the broad flight of steps (which Institute students have always associated with their social life)—a tradition from the Rogers Building in Boston. Here the steps are more broad and hospitable, with seats and platforms, and one pictures many informal gatherings of students about the spacious portico.

This building was taken over by the United States service before it was entirely completed, especially as regards its interior decoration. Students are quartered in the gymnasium, and even in the galleries of the dining hall, where burlap curtains have been hung, therefore no illustration is presented for it would not express the final appearance of this room; the section shown on Plate 99 indicates its character, however. The furniture is made to fold and stack in order that the floor may be cleared for dancing, and a wide floor area has been effected unencumbered by points of support. The bust of General Walker from the Rogers Building has been fittingly placed in the monumental mantelpiece at the end opposite the entrance. The room is beautifully lighted from both sides and presents an aspect of proportion and character which harmonizes admirably with the spirit of Technology. The building is of course a carefully worked out organism of club rooms for the students, and for the faculty and alumni, with attendant dining rooms and kitchen accommodations, as well as recreation rooms, bowling alleys, squash courts, gymnasium, students' committee, and trophy rooms. The Walker Memorial was erected from contributions of the alumni, and when the war is over and Technology settles down again to normal conditions, it should prove once more how important a factor sane, sober, and beautiful architecture may be when fittingly adjusted to the purposes which it is intended to serve. These buildings as a whole are a strong fulfilment of this ideal, and one impatiently awaits the additional dormitories in the spaces between the Walker Memorial and the Educational Group to complete this picture, surely the most interesting, educational ensemble of modern times.



VIEW FROM CHARLES RIVER ROAD SHOWING PRESIDENT'S HOUSE AT LEFT

AND ADDRESS ARE

STUDY

AND ADDRESS ARE

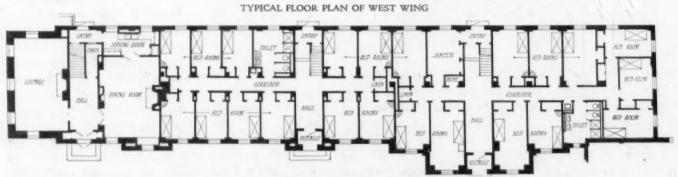
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FIRST FLOOR PLAN OF WEST WING, COMPRISING HOUSES A, B, AND C

DORMITORIES, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.

WILLIAM WELLES BOSWORTH, ARCHITECT

### Student Housing at the Massachusetts Institute of Technology

By H. E. KEBBON

DURING the summer of 1912 preceding the preparation of the architectural plans for the new Technology buildings, representatives of the Institute visited the foremost colleges and universities of this country and prepared detailed reports of the important educational features found at these institutions. At the request of the Alumni Committees appointed by the Alumni Association, supplementary reports were submitted covering the provisions for student welfare found at these same universities, embracing both the social centers or "Unions" and the student housing systems. A wealth of material was thus collected covering the following general subjects:

General floor plans and elevations, cost of construction, dining facilities, commissary systems (waiter or cafeteria service), governing boards (faculty or student members or both), charges to students, itemized cost of upkeep, budget, sources and amount of income, business systems, number of stu-

dents accommodated compared to total enrolment, special features, etc.

From this data charts were prepared of both the students' club-houses and dormitories, giving the unit cost of construction and space allotted per student, cost per student, expense of operation, etc., which resulted in a final chart of averages reducing this information into constants which, when multiplied by the number of students to be accommodated, gave a basis for

determining the size and cost of the Technology requirements.

This data was supplemented by photographs of special features, and the architects of the different buildings were freely consulted and gave valuable aid in suggesting modifications or changes resulting from their experience.

The schools possessing clubhouses comparable with the one contemplated for Technology were the University of Pennsylvania, Harvard University, Brown University, Ohio State University, University of Chicago, and the University of Toronto. Each of these schools contributed at least one important element for consideration. The general plan of Houston Hall at Pennsylvania was interesting; the large dining room, serving also as an assembly room at Harvard Union, was a contribution; the dining facilities at the University of Chicago were full of suggestion, and the cafeteria dining service used in some of the Western univer-

sities led to its adoption at Tech-

nology.

A B C

0 50 100 150 D

SCALE OF FEET

TERRACE

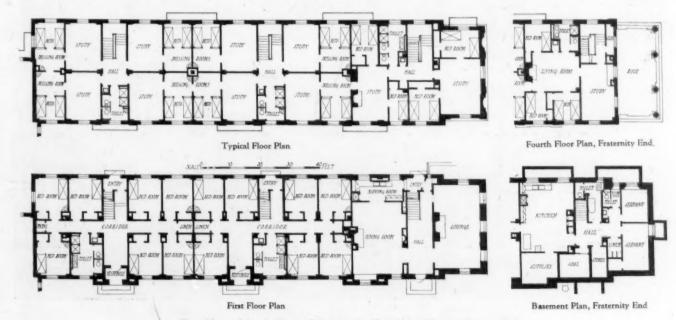
PRESIDENTS
HOUSE

E

F

Plan Showing Divisions of Dormitory and President's House

The various dormitory systems offered a wide range to choose from. Some of the colleges held to the unit housing scheme, each house accommodating from twenty to forty men with individual staircases serving each; while others were given to the hotel arrangement of rooms, opening from long corridors in buildings four to eight stories high. The proportion of rooms in suites to single



Floor Plans of South Wing of Dormitories Comprising Houses D, E, and F

rooms was carefully studied, as well as the matter of sleeping porches and toilet accommodations.

The Pennsylvania dormitories, together with those at Yale, Princeton, and Northwestern University, contributed valuable material.

After this mass of information had been carefully compiled, as mentioned above, many conferences were held by the two alumni committees: one of the Walker Memorial Committee, charged with the supervision of the clubhouse to be erected in memory of Technology's eminent soldier president, General Walker, and the other the Student Housing

Committee having the dormitory problem to solve. These committees, after many meetings, presented carefully considered reports to the President of the Institute, setting forth their recommendations for their respective projects, and preliminary plans were prepared by William Welles Bosworth, the architect, incorporating their suggestions for both buildings. These plans were placed before the Alumni Association for comment and after several revisions were adopted and the construction was started.

The Walker Memorial plan and elevations clearly indicate the characteristics of the interior arrangement. The pièce de resistance is the large dining hall in the center of the plan accommodating nearly a thousand students. The service unanimously chosen for providing this large number of men with meals



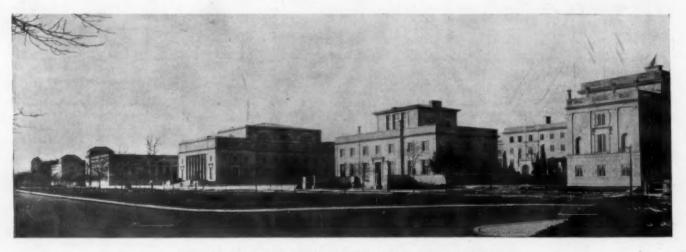
View Looking West Showing Dormitory Entrances

was the cafeteria system, although there is in addition a smaller dining room with table d'hote service, and a grill room and faculty dining room, provided with special order cooking.

The cafeteria service is installed to provide for the noon meal only, as the majority of the students do not live near the Institute and are only present during the middle of the The main dining room may be easily cleared of chairs and tables and used for dances and other forms of entertainment. Directly over the dining room is the gymnasium, expressed exteriorly by the large semicircular windows which provide excel-

lent lighting. The remaining rooms are assigned to reading or writing, student offices, and the usual adjuncts. Directly back of the broad attic, above the entrance colonnade four squash racquet courts are located.

The dormitories incorporate the staircase system of student houses. The rooms are so arranged that the sleeping rooms are literally porches, unheated and open to the weather if desired, but are provided with dressing rooms immediately adjacent. These are located on the south side of the buildings in nearly all cases. The single rooms compose the first floor plan and the suites, comprising a study, dressing room, and sleeping porch, are on the upper floors. Fraternity houses are included in the dormitory building, occupying the end sections in the two wings.



View from Charles River Road Looking West Toward Educational Group



WALKER MEMORIAL, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
WILLIAM WELLES BOSWORTH, ARCHITECT



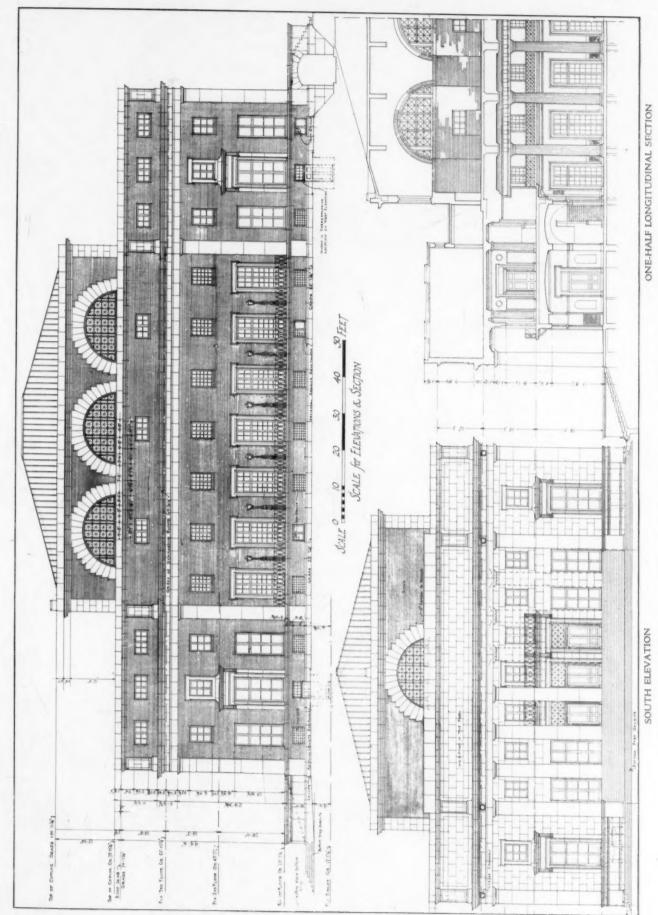


DETAIL OF PRINCIPAL FACADE

WALKER MEMORIAL, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.

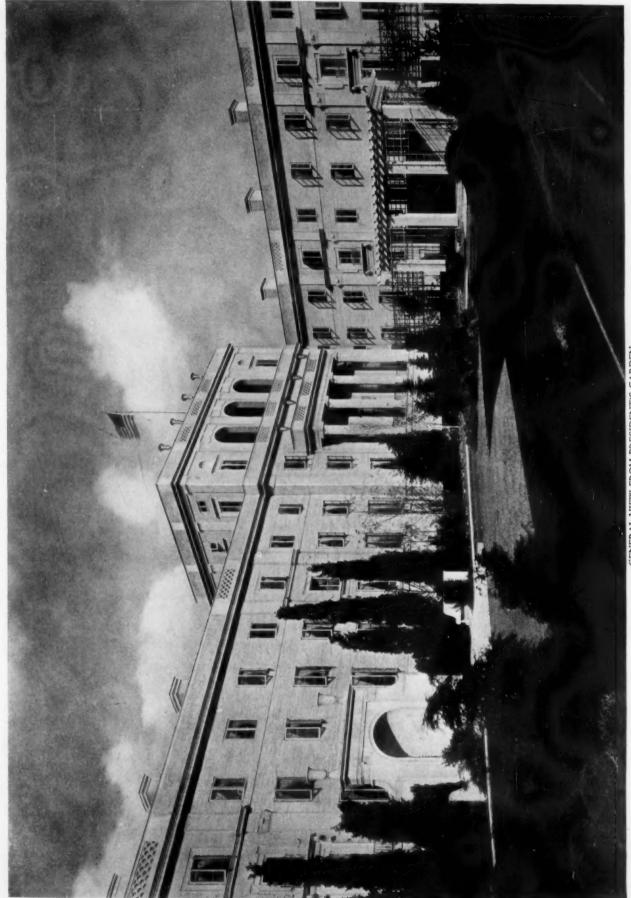
WILLIAM WELLES BOSWORTH, ARCHITECT





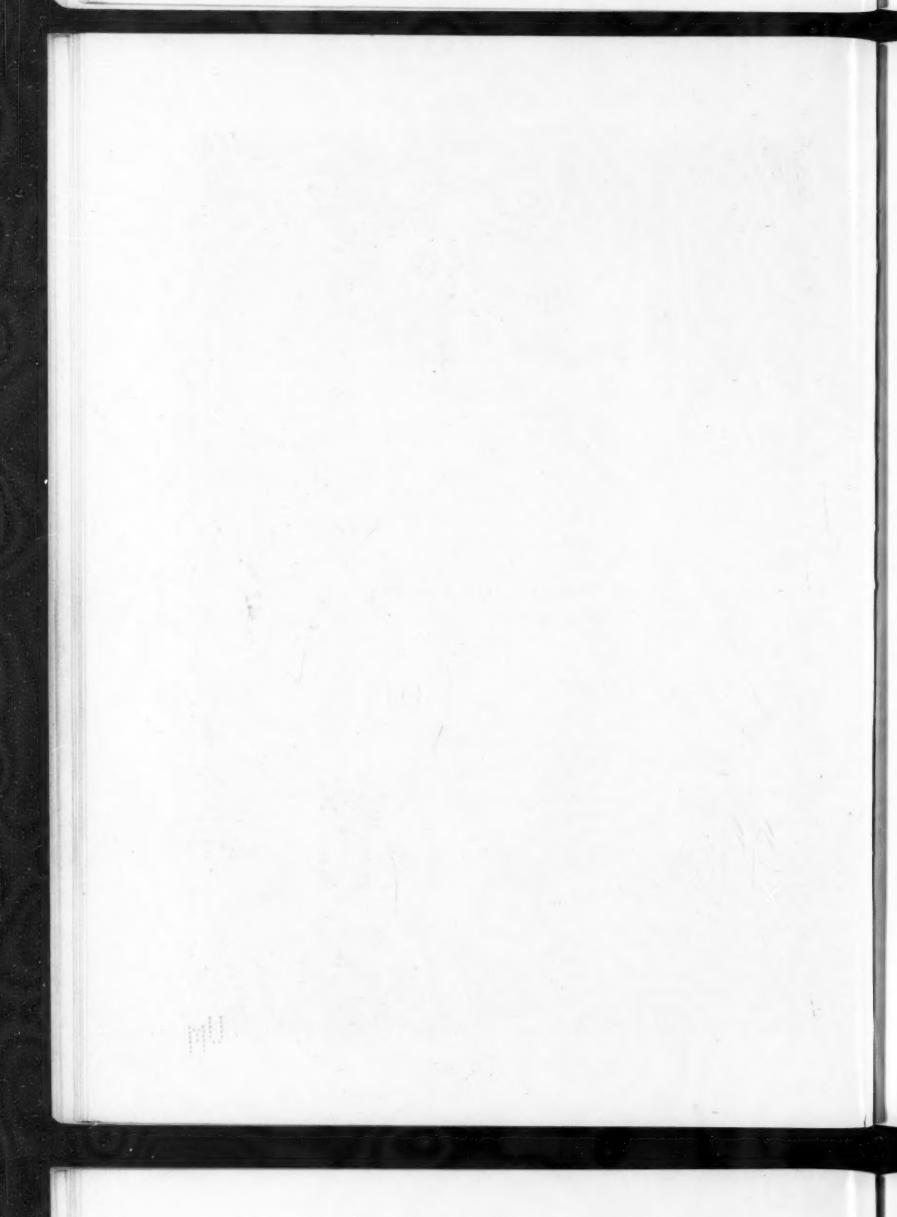
WALKER MEMORIAL, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS. WILLIAM WELLES BOSWORTH, ARCHITECT





DORMITORY BUILDINGS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS. GENERAL VIEW FROM PRESIDENT'S GARDEN

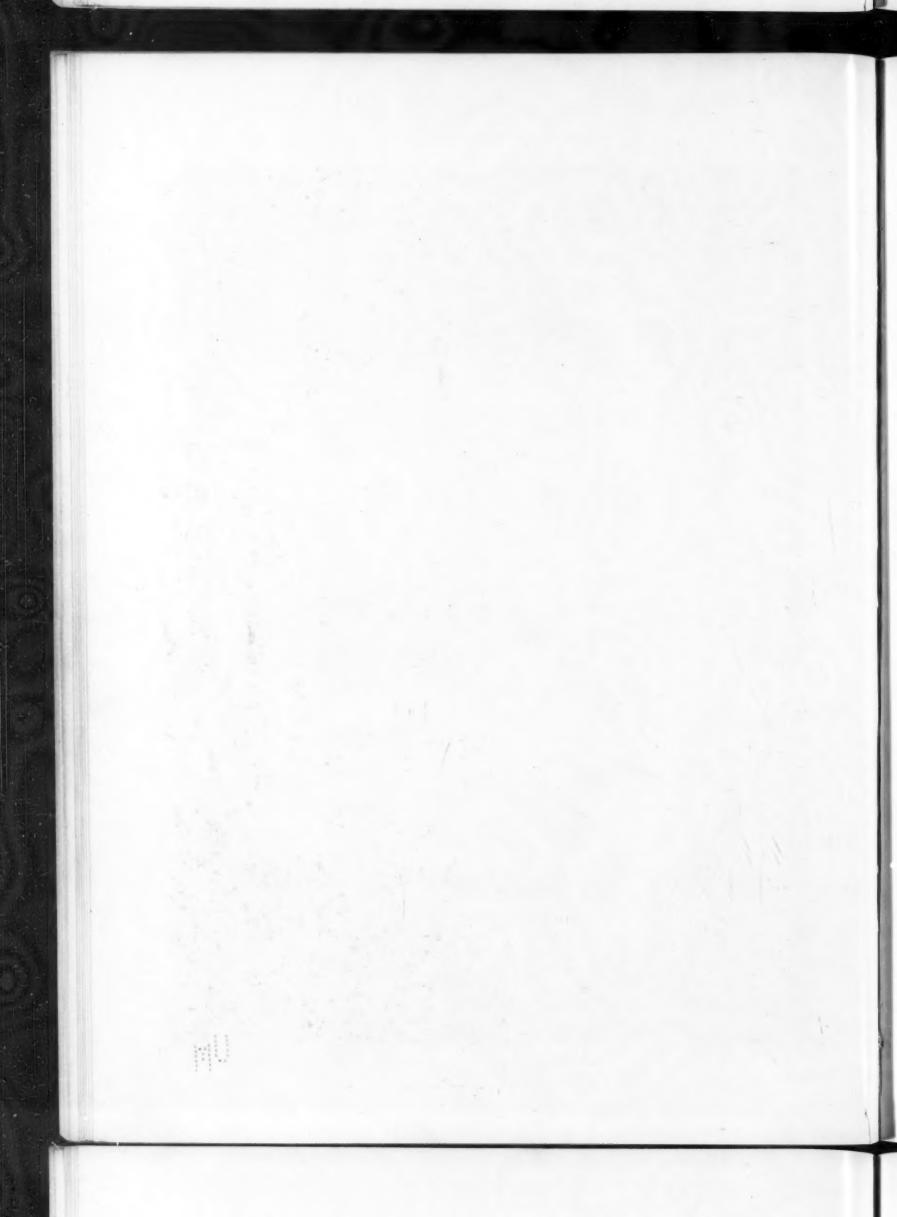
WILLIAM WELLES BOSWORTH, ARCHITECT





VIEW OF WEST WING FROM PRESIDENT'S GARDEN
DORMITORY BUILDINGS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.

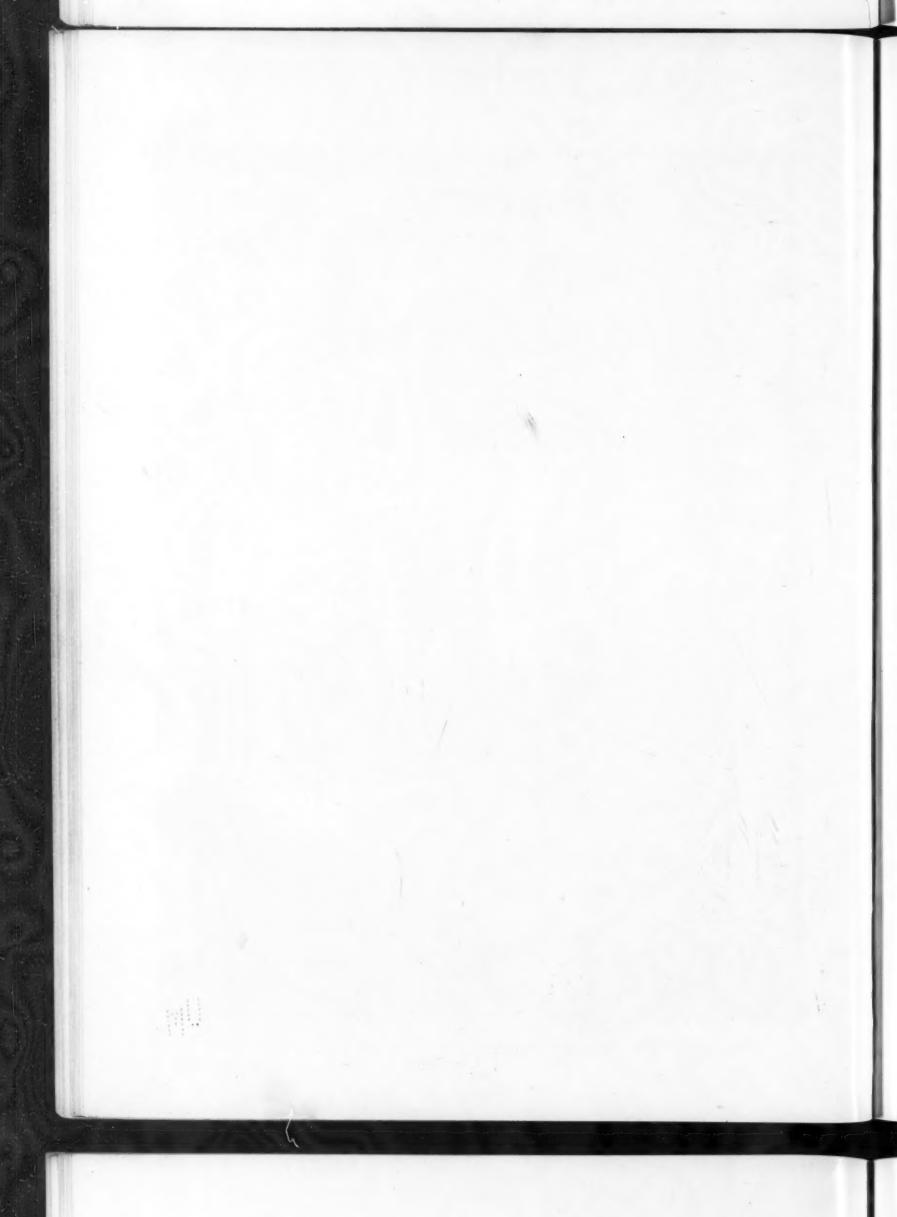
WILLIAM WELLES BOSWORTH, ARCHITECT

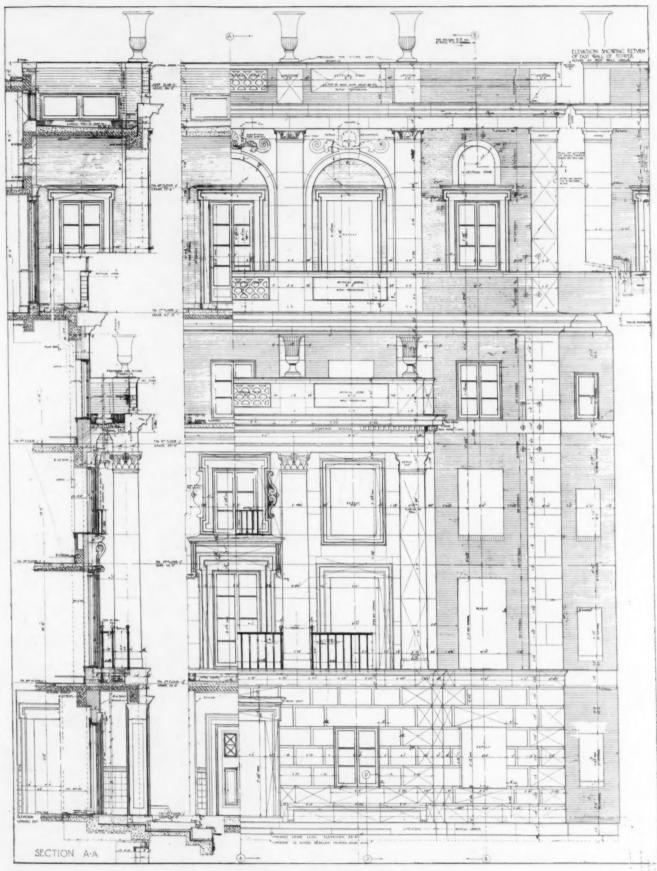




DETAIL OF TOWER

DORMITORY BUILDINGS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
WILLIAM WELLES BOSWORTH, ARCHITECT

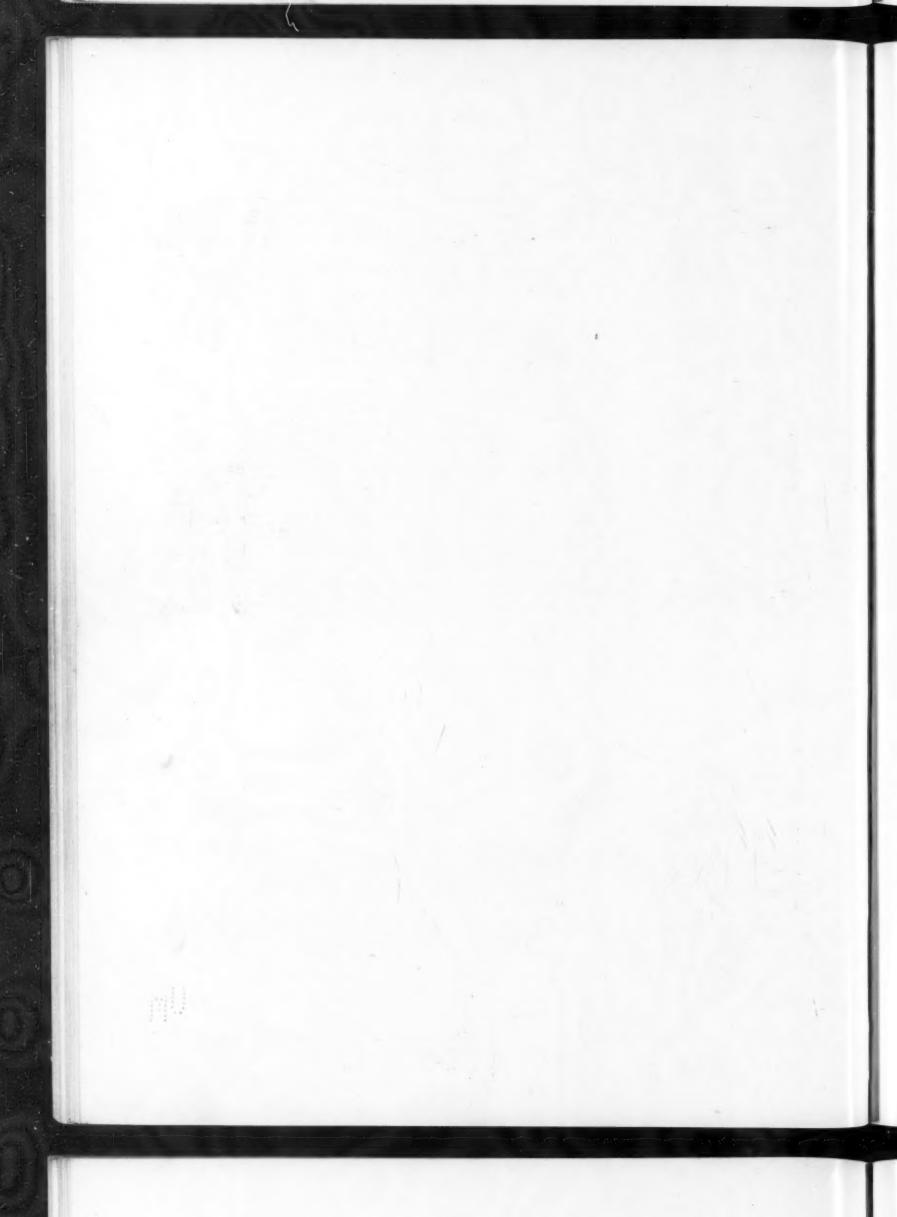




DETAIL OF SOUTH FACADE OF TOWER

DORMITORY BUILDINGS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.

WILLIAM WELLES BOSWORTH, ARCHITECT

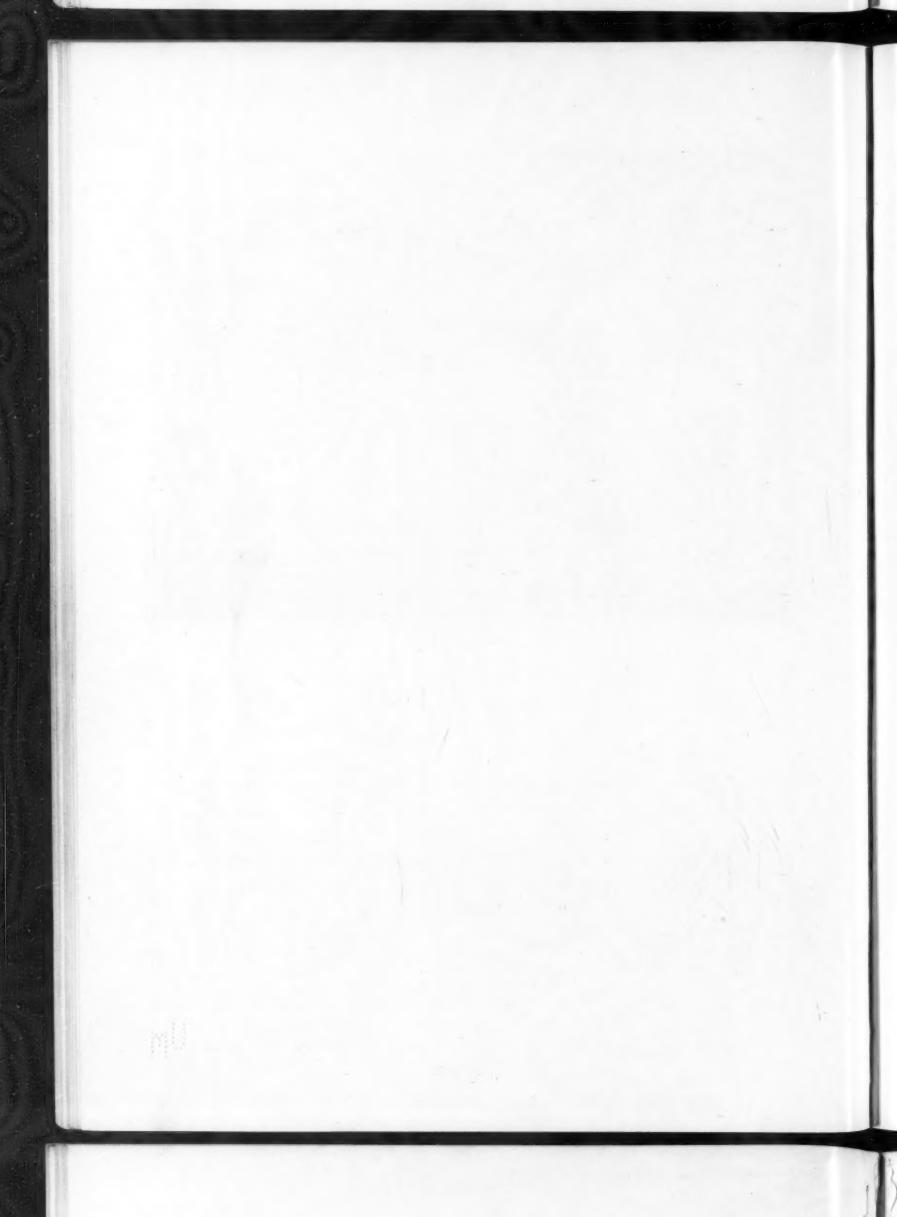




VIEW OF STREET FACADE

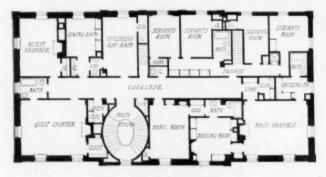


PRESIDENT'S HOUSE; MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
WILLIAM WELLES BOSWORTH, ARCHITECT





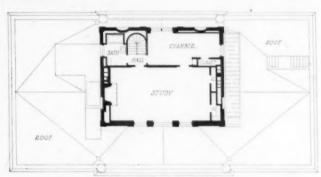
VIEW OF GARDEN FACADE



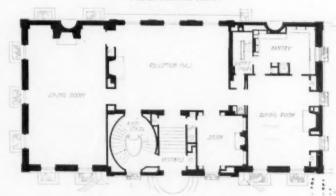
SECOND FLOOR PLAN



BASEMENT FLOOR PLAN



THIRD FLOOR PLAN

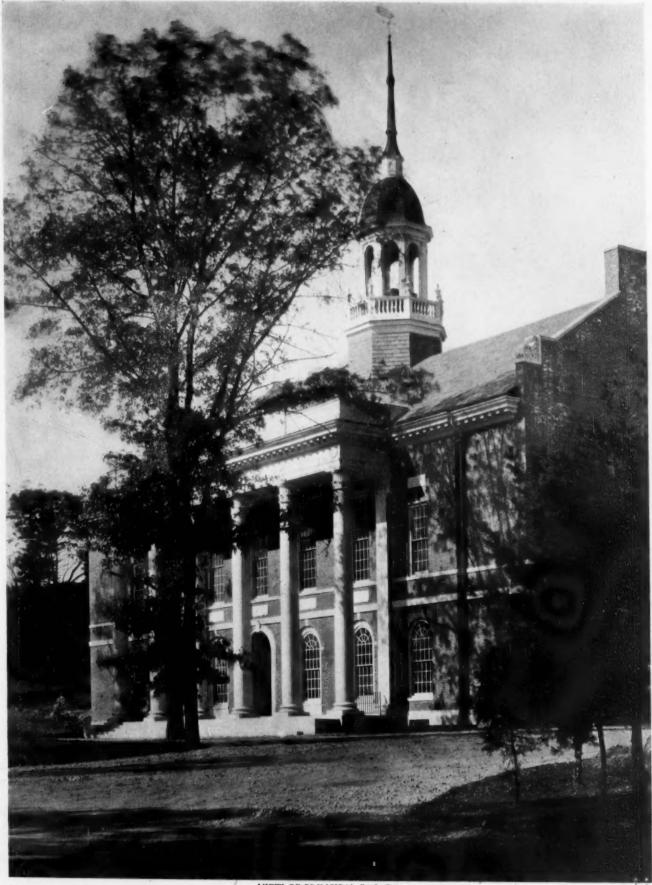


FIRST FLOOR PLAN

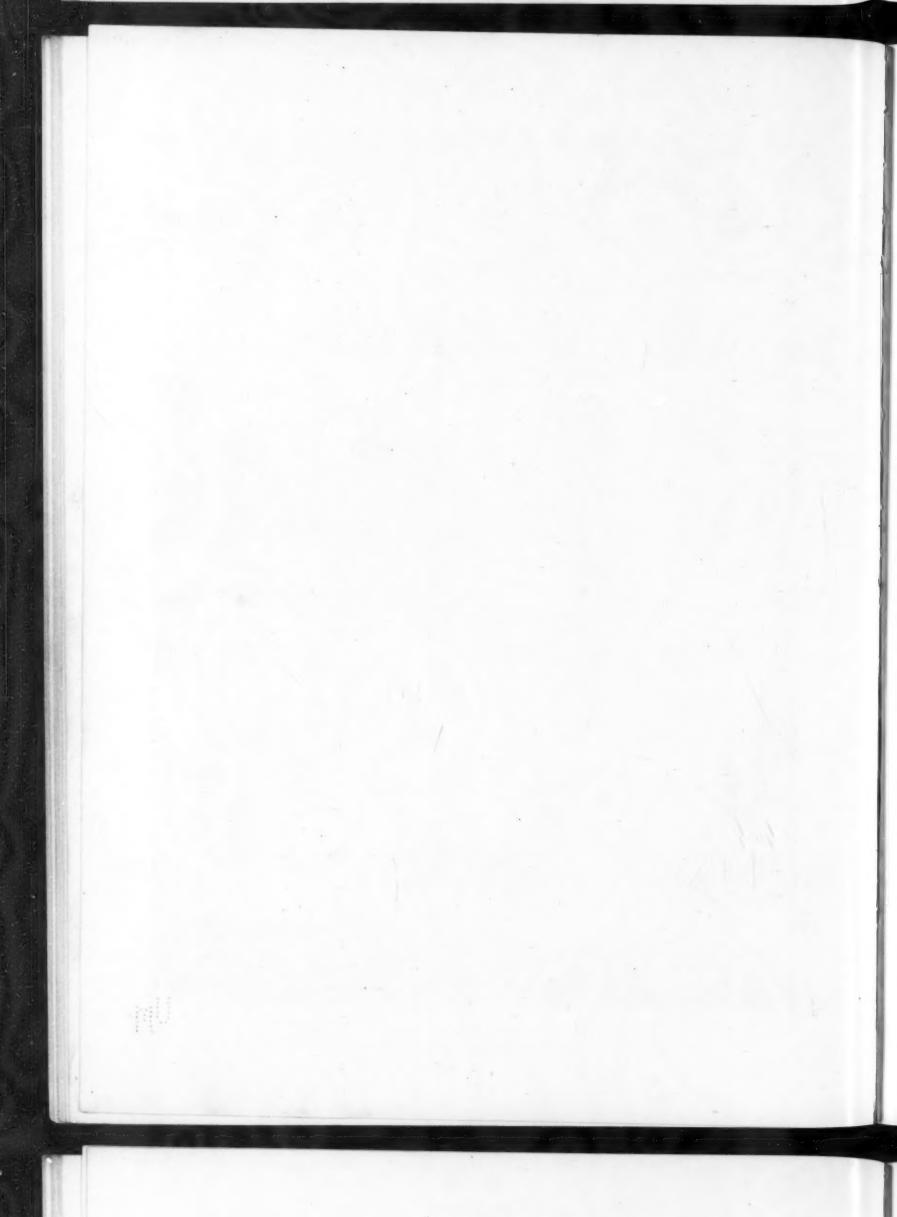
PRESIDENT'S HOUSE, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.

WILLIAM WELLES BOSWORTH, ARCHITECT



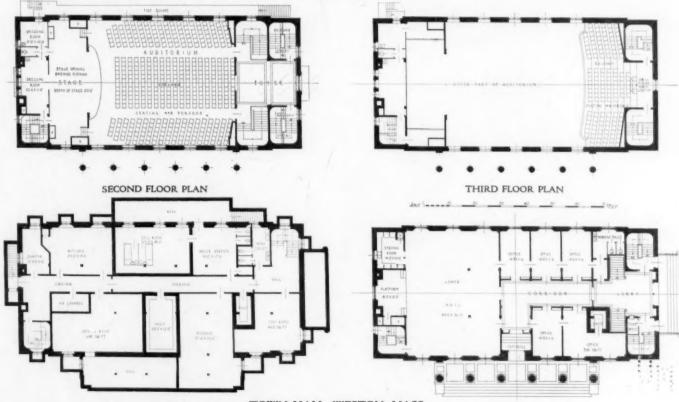


VIEW OF PRINCIPAL FACADE
TOWN HALL, WESTON, MASS.
BIGELOW & WADSWORTH, ARCHITECTS





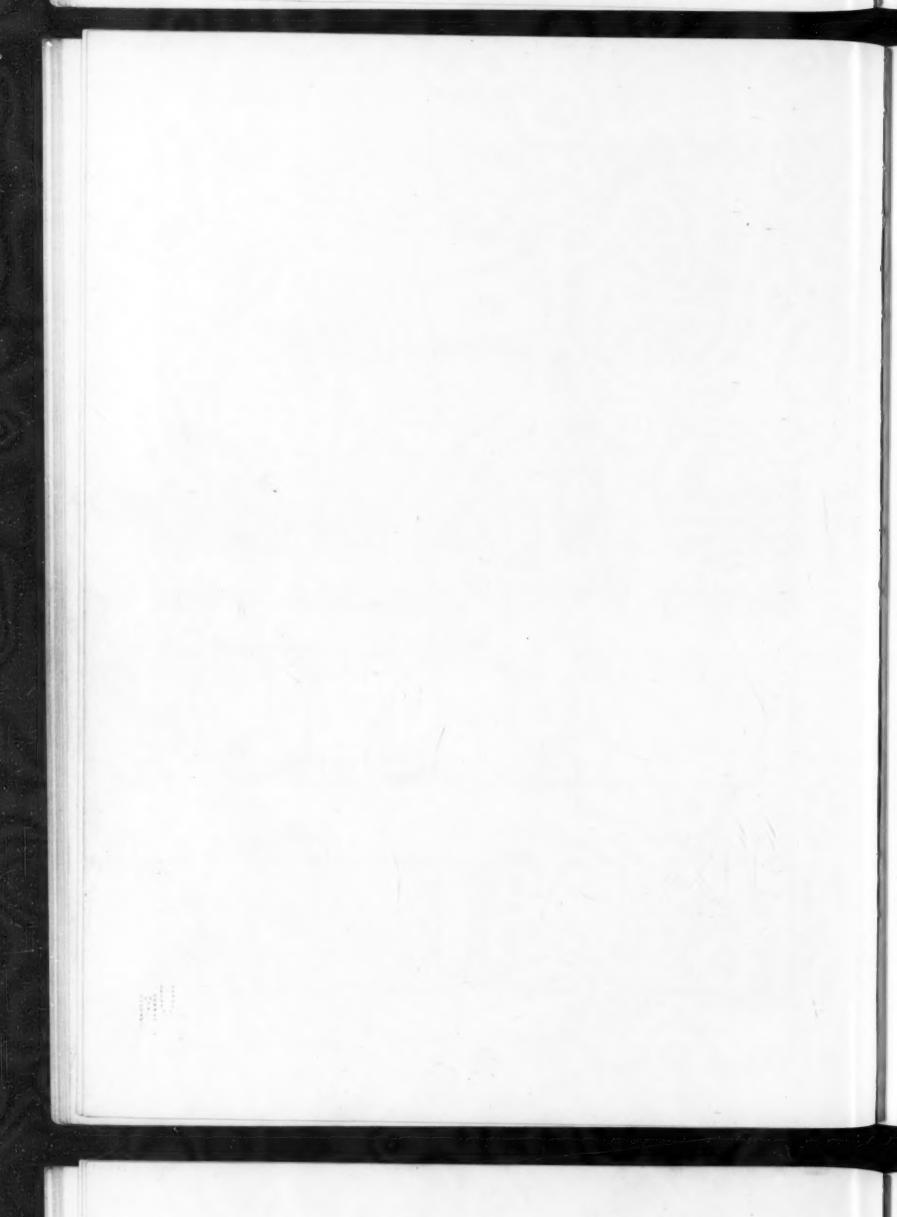
GENERAL VIEW



BASEMENT FLOOR PLAN

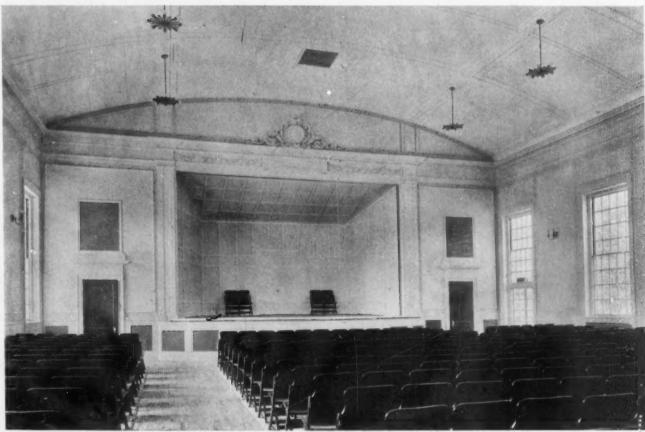
TOWN HALL, WESTON, MASS.
BIGELOW & WADSWORTH, ARCHITECTS

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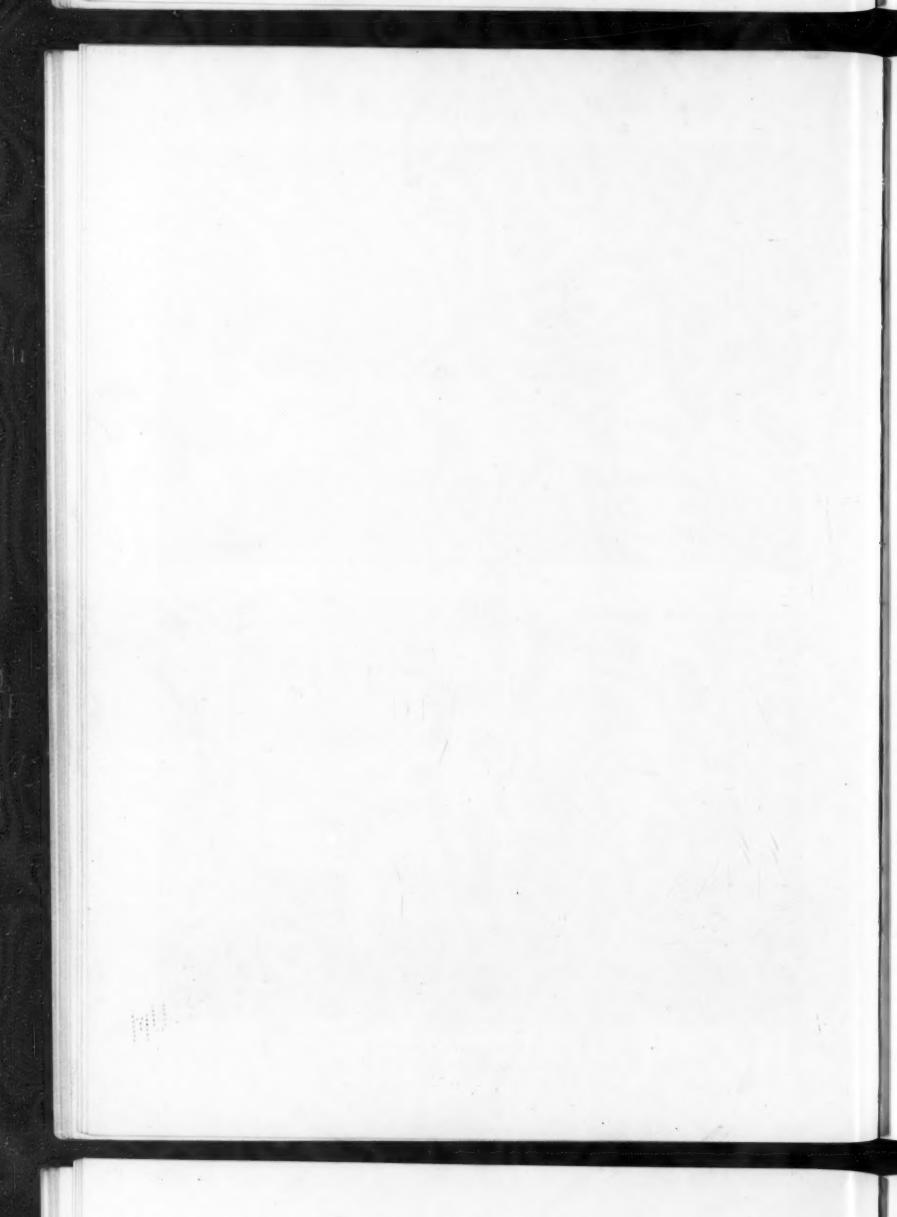




VIEW OF AUDITORIUM LOOKING TOWARD GALLERY



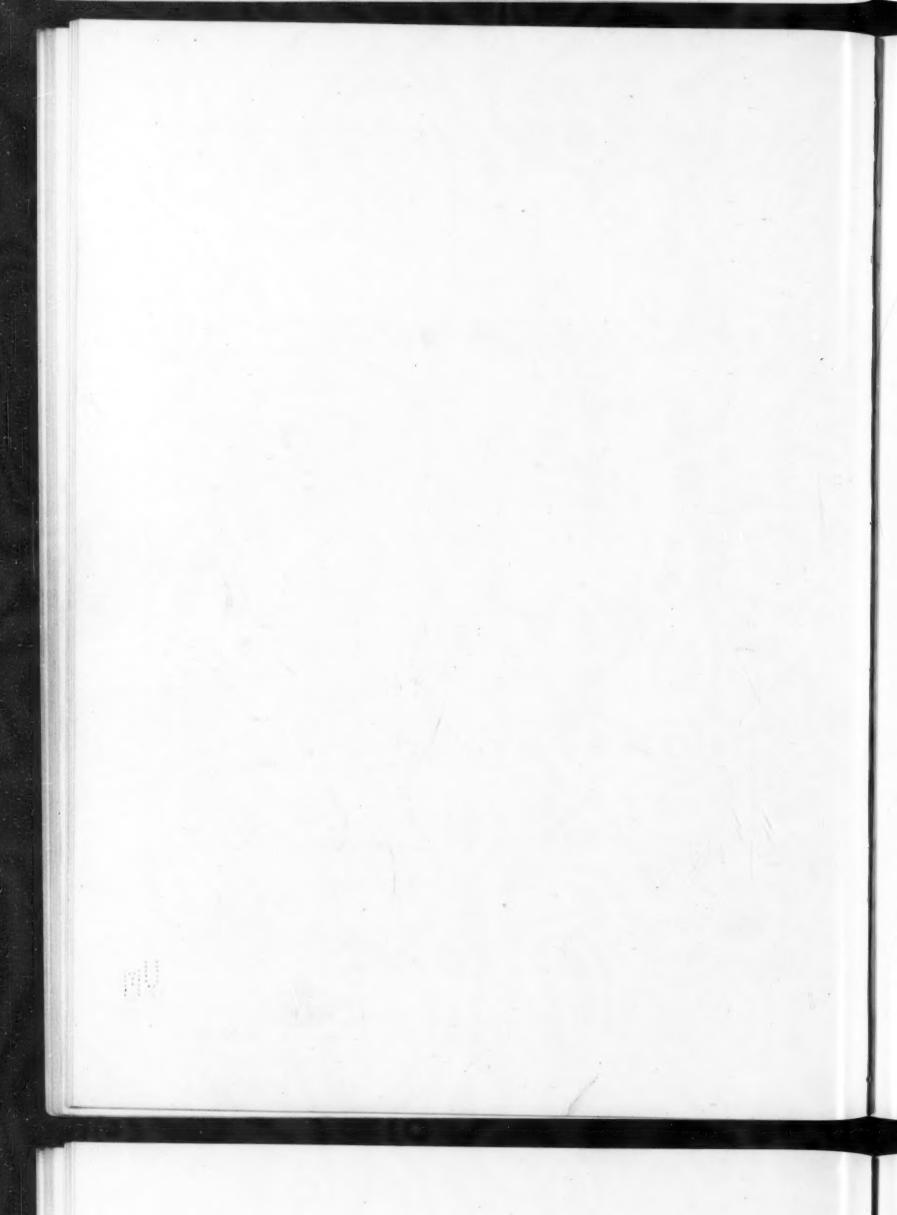
VIEW OF AUDITORIUM LOOKING TOWARD STAGE
TOWN HALL, WESTON, MASS.
BIGELOW & WADSWORTH, ARCHITECTS





GENERAL VIEW OF EXTERIOR

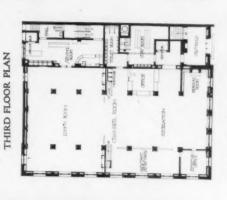
CHAMBER OF COMMERCE BUILDING, ROCHESTER, N. Y. CLAUDE BRAGDON AND FOSTER & GADE, ASSOCIATE ARCHITECTS



FIRST FLOOR PLAN



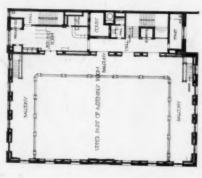


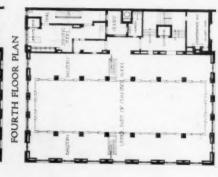


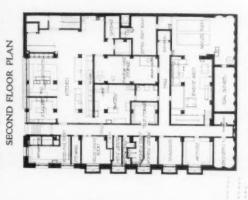


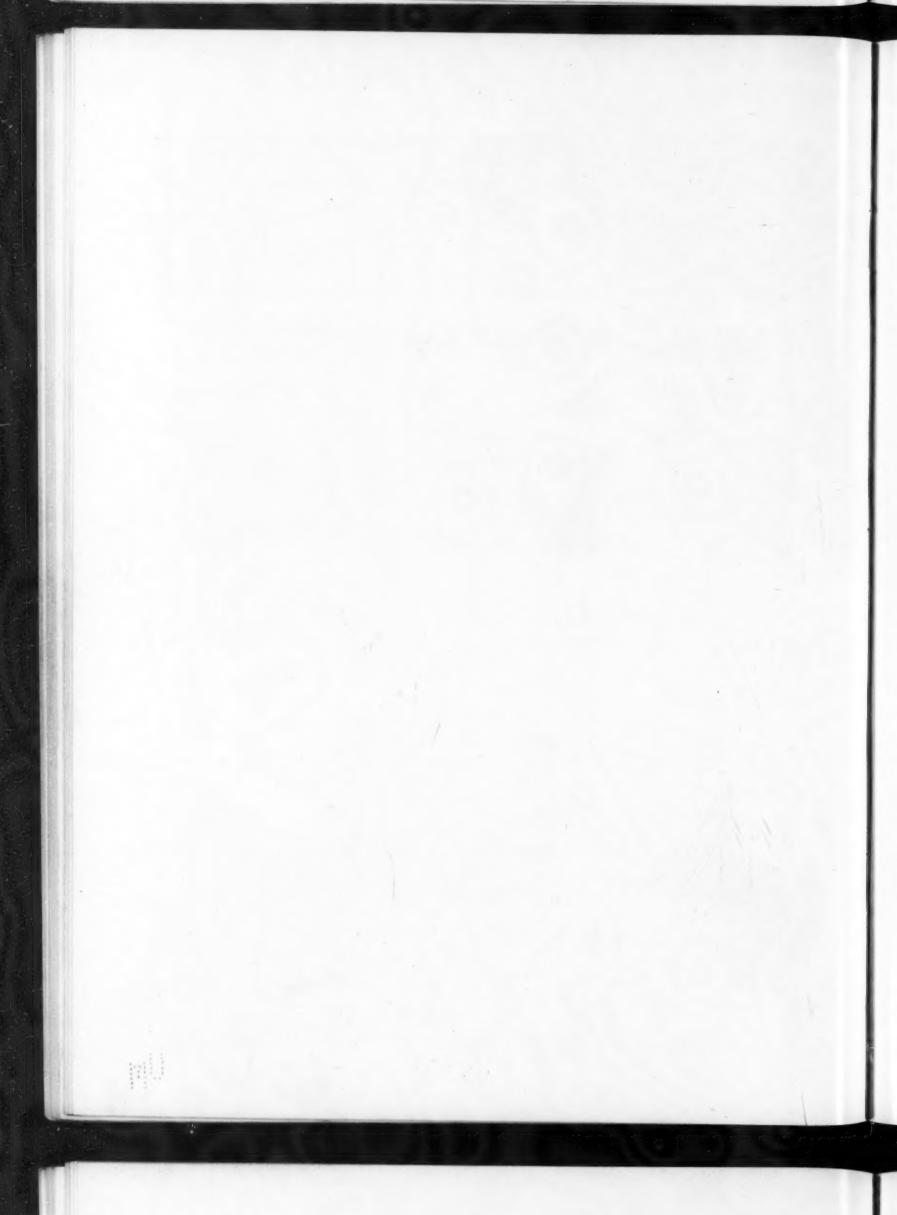
DETAIL OF PRINCIPAL FACADE
CHAMBER OF COMMERCE BUILDING, ROCHESTER, N. Y.
CLAUDE BRAGDON AND FOSTER & GADE, ASSOCIATE ARCHITECTS

BASEMENT FLOOR PLAN

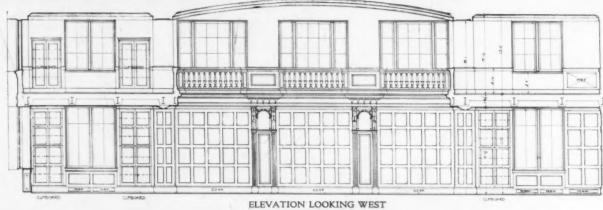


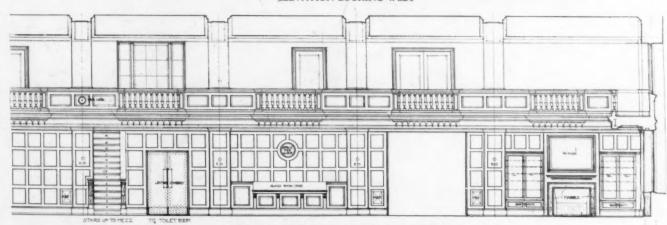






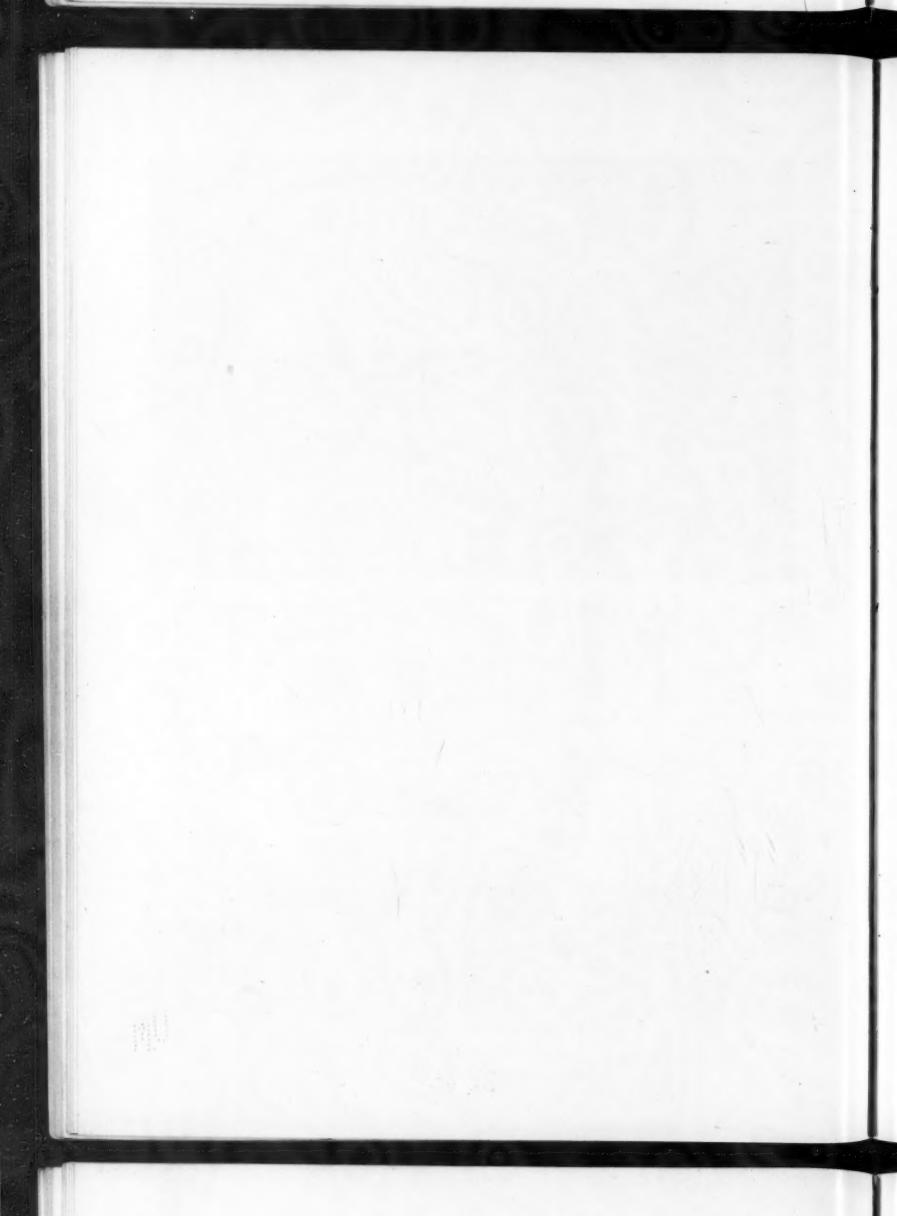


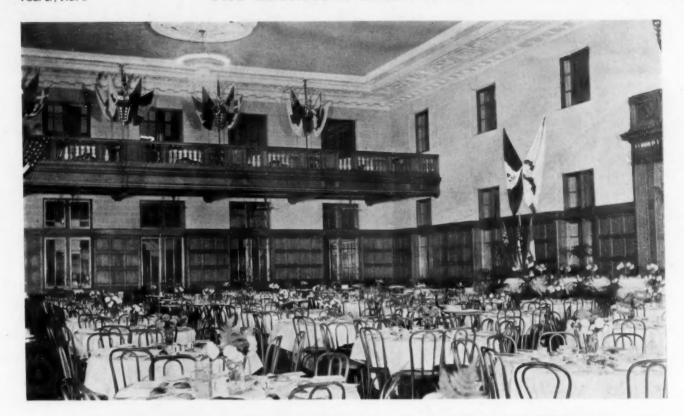


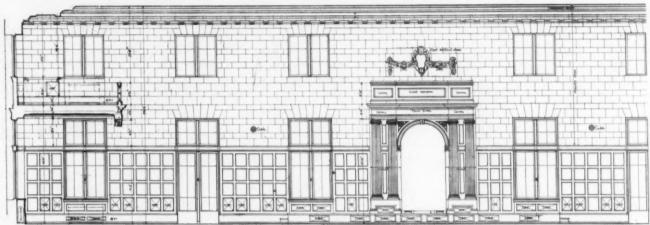


PORTION OF ELEVATION LOOKING NORTH

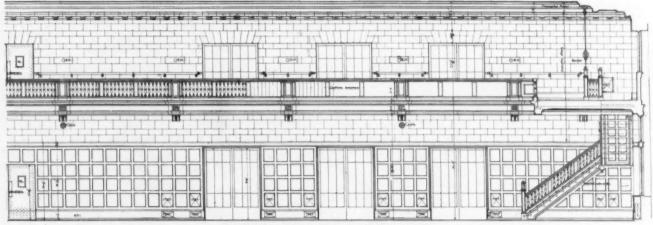
CHAMBER ROOM, CHAMBER OF COMMERCE BUILDING, ROCHESTER, N. Y.
CLAUDE BRAGDON AND FOSTER & GADE, ASSOCIATE ARCHITECTS





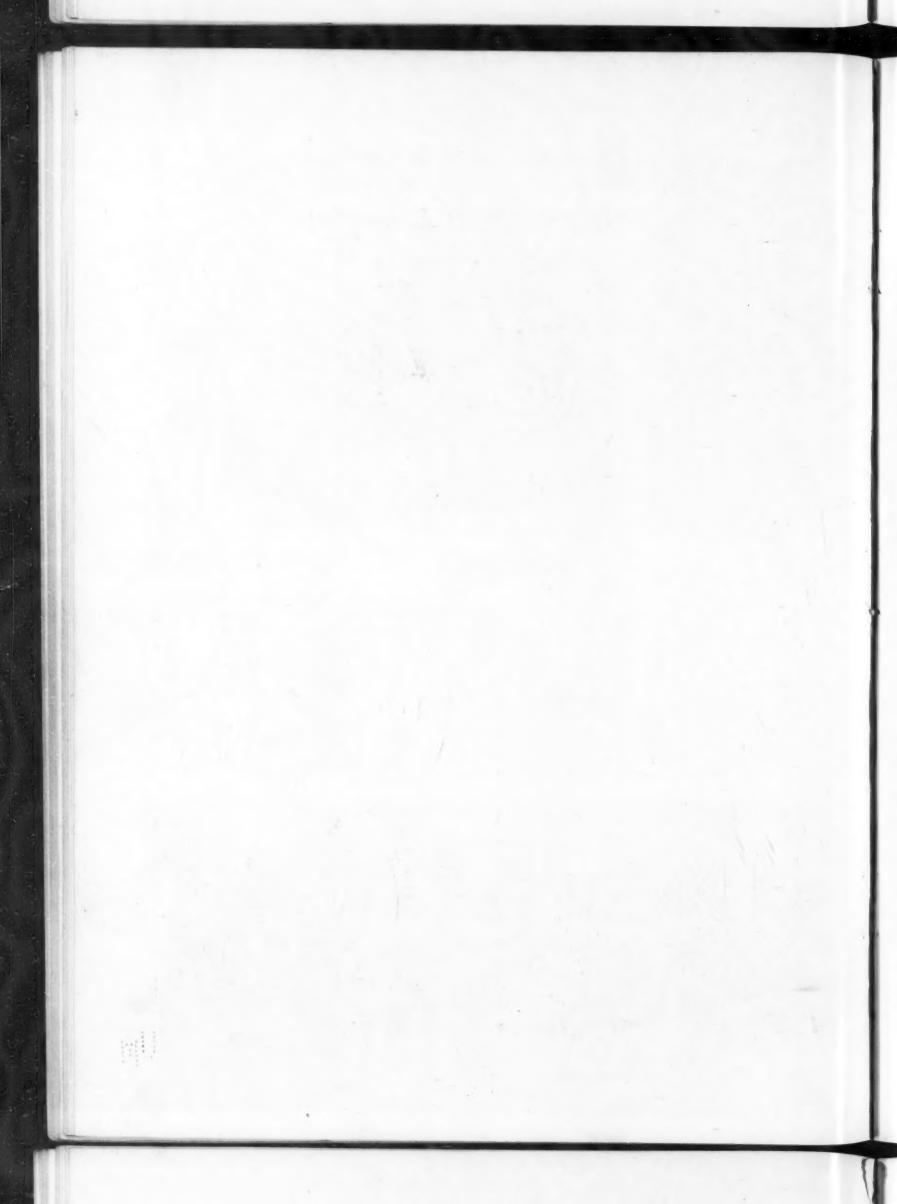


PORTION OF ELEVATION LOOKING SOUTH



PORTION OF ELEVATION LOOKING NORTH

ASSEMBLY ROOM, CHAMBER OF COMMERCE BUILDING, ROCHESTER, N. Y. CLAUDE BRAGDON AND FOSTER & GADE, ASSOCIATE ARCHITECTS



#### The Rochester Chamber of Commerce

CLAUDE BRAGDON AND FOSTER & GADE, ASSOCIATE ARCHITECTS

THE Rochester Chamber of Commerce Building is the three-dimensional embodiment of an idea.

This idea finds expression in the word "together."

For good or for ill the old "cellular system" of separate rooms for separate functions has been boldly and definitely abandoned in favor of a single chamber room in which all the various activities of the organization are carried on simultaneously. This great room, open in every part to all who enter, silently yet eloquently

preaches the new business and social morality, "Live openly." It conduces to sociability, to co-operation; it fosters the spirit of true democracy.

Above this room devoted to the work and daily uses of the chamber is an assembly hall capable of accommodating one thousand persons for large luncheons, formal dinners, meetings, lectures, and the like.

Everything else is subsidiary to these two rooms. Their size, proportions, decoration, furnishing, are such as to conduce to dignify and beautify the life that goes on in them. For such another wedding of art and commerce it is necessary to hark back to fifteenth century Florence, or to the English guildhalls of the seventeenth and eighteenth centuries.



Reading Alcove on Main Floor

Indeed, the chamber room, with its wealth of oak paneling and its ornamental plaster ceiling, somewhat suggests a Georgian guildhall, despite its modernity in all matters pertaining to comfort and convenience and the complex machinery of business.

The dimensions of this room are 63 by 108 feet. It is subdivided by two rows of piers, making a central nave 33 feet wide and 24 feet high, and two side aisles about 15 feet wide. Above these are mezzanines, reached by two stairways and con-

nected across the ends of the room by means of shallow galleries bracketed out from the faces of the end walls.

Up to the height of the gallery rail—a distance of about 16 feet—the room is wainscoted entirely in white quartered oak of a grayish brown color. Above this the walls are of plaster and the ceiling a shallow, segmental vault, also of plaster. This ceiling is richly but rationally ornamental. That is to say the ornament, instead of being meaning-lessly applied, forms an integral part either of the illuminating or of the ventilating system.

That half of the central section of the chamber room nearest St. Paul street is dedicated to social and recreational uses. It is furnished in French wal-



Conference Room



Corner of Lunch Room

#### THE ARCHITECTURAL FORUM

nut, with comfortable chairs and settees upholstered in blue leather. Two double writing desks occupy the spaces between the front windows, and the northeast alcove under the mezzanine is fitted up as a library, with a fireplace, bookcases, magazine rack, and easy chairs. The corresponding alcove on the south, on the corner of St. Paul and Mortimer streets, is partitioned off to form the secretary's private office. The assistant secretaries occupy a space of 45 by 15 feet on the south side, separated from the main room only by a railing. The office is directly opposite this, on the north side. This brings it immediately adjacent to the entrance

and telephone operator are here. It is the dispensary of information, newspapers, and cigars.

The entire rear half of the chamber room is devoted to the uses of a restaurant to accommodate the daily influx at the luncheon hour. The entire north mezzanine is also arranged for the service of meals



Lighting Fixture of Chamber Room

to the various committees which meet for lunch, according to a custom long established in this organization

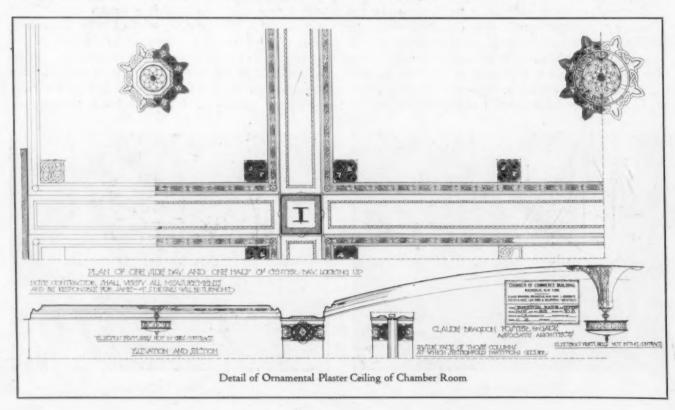
The south mezzanine is given over entirely to business, being occupied by the clerical, stenographic, and departmental forces.

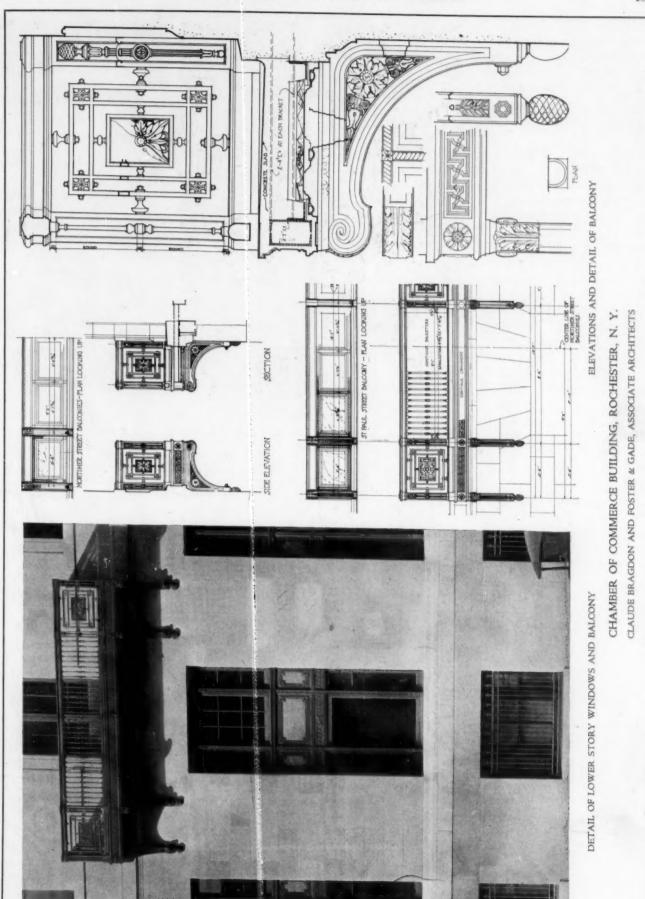
Directly behind the office are the coat and toilet rooms, provided with the latest and best equipment, wainscoted with structural glass and floored with tile.

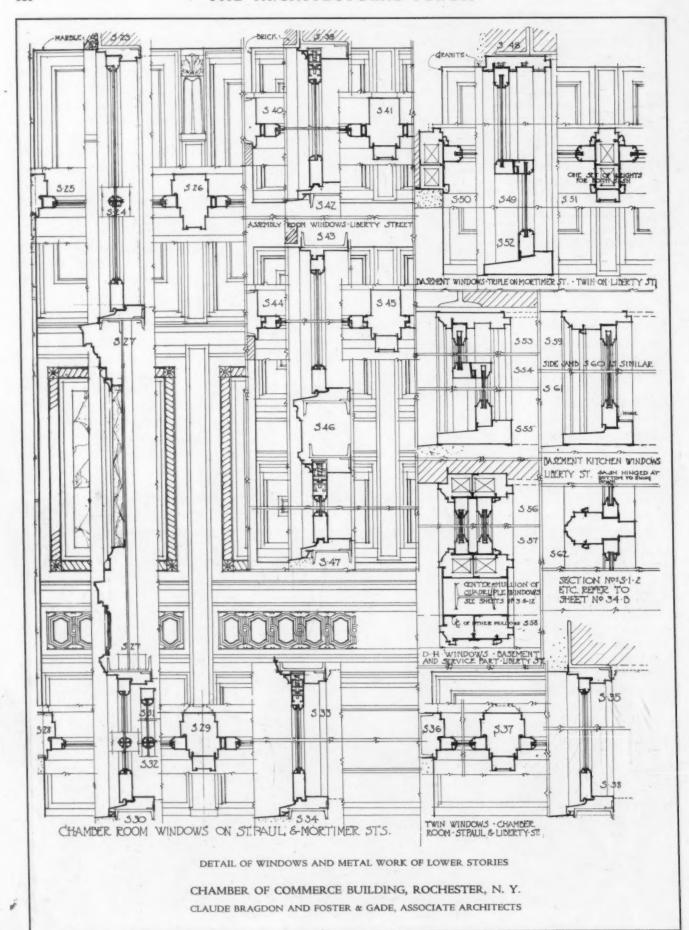
The approach from the street to the chamber room is through a lofty vestibule completely lined with Botticino marble and floored with gray Tennessee marble. From it a marble stairway 8 feet

and in the very center of things. The bookkeepers wide ascends to the various floors and communicates with marble lined halls.

> Off of one of the two landings of this stairway is a conference room for meetings of a private nature. It is a low room, lighted only from above, paneled from floor to ceiling, like the cabin of a ship. The room is beautifully furnished as a memorial to Benjamin









Detail of Balcony at Ends of Chamber Room

F. Chase, Treasurer of the Chamber for twenty-two years.

The assembly room is of the same dimensions as the chamber room, but being more lofty and without piers or columns, it looks larger. The ceiling is plaster, richly ornamented. There is a 9-foot wainscoting of quartered oak, stained dark, and between the top of this wainscot and the cornice the walls are covered with stone of a delicate rose-gray color - a manufactured product having valuable acoustic properties. A broad gallery with a heavy wooden entablature and balustrade extends around three sides of the room, and on the side opposite the entrance is a long, low stage behind which rises an impressive frontispiece of wood and green marble, having in gold letters on its attic the following inscription taken from the inaugural address of Jonathan Child, the first Mayor of Rochester:

"In the intercourse of social life, and on all occasions involving the interests of our young city, let us forget our politics and our party and seek only the public good."

The frieze of this entablature has the legend, "Commerce carries civilization around the world."

Above the assembly room is a penthouse containing the ventilating machinery. Both the chamber room and the assembly room are ventilated by means of a plenum system, whereby a copious and constant supply of fresh washed air is provided and the vitiated air exhausted.

The kitchen occupies the rear of the basement and is connected with a serving room on every floor by means of six electric automatic dumbwaiters. By reason of the fall of the ground toward the river, the kitchen receives an abundance of daylight from the rear.

Everything possible has been done to make the kitchen the best equipped, most convenient, and most sanitary that can be devised. The walls are lined with white enameled brick. The floors are of composition tile, the ventilation and drainage are of the most modern type. In connection with the kitchen is a large bakery and ice-cream room. The basement also contains cold storage rooms and refrigerators, a help's dining room, toilet, and coat rooms, an office for the steward and one for the engineer, besides the heating and power plant. There is, of course, a vacuum cleaner and a garbage incinerator, and such other mechanical conveniences



Central Feature of West Wall, Assembly Room



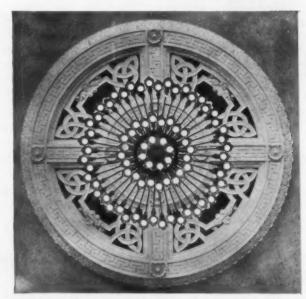
Detail of Plaster Ceiling of Assembly Room

as go to the equipment of a building of this character.

The exterior of the building is a face and not a mask. That is to say, it acquaints the beholder with the interior arrangement at a glance. Here are two rooms, their length and breadth clearly defined, and their height also, for the water table marks the floor of the one and the string course and balconies that of the other.

There is nothing meaningless nor unnecessary about the design: one feels that it has developed naturally from the plan; that interior necessity determined its physiognomy, and not the whim or preference of the designer for a particular style.

Nor could the building be easily mistaken for something other than it is, for it has the beauty, sobriety, and dignity befitting the Chamber of Commerce of a large and prosperous city. The scale and proportions are noble, the materials rich, - granite, marble, and bronze. With these materials time deals leniently; instead of deteriorating into shabbiness, the building will take on the "tone of time" with the passing years. There will stand, for future generations, not only a center of



View Looking up at Lighting Fixture of Assembly Room

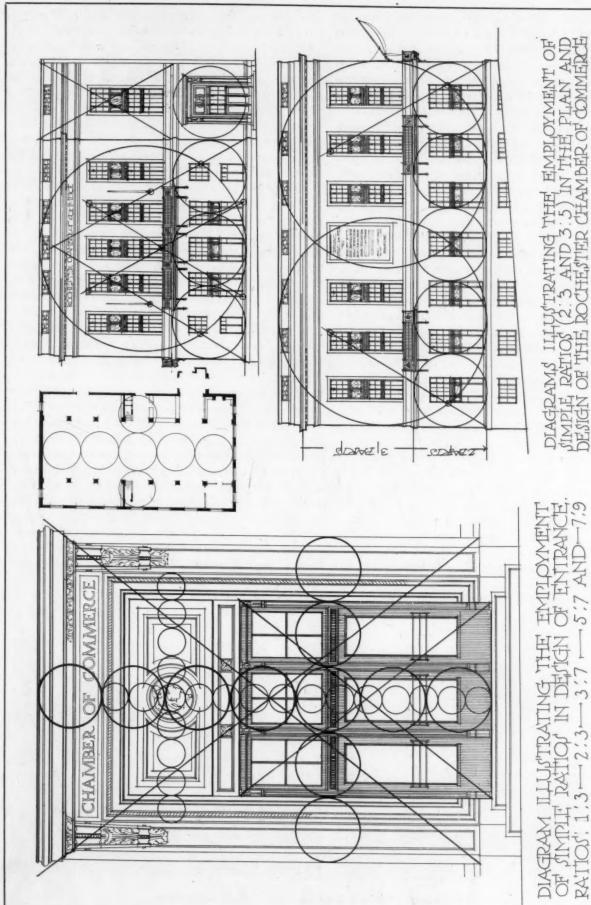


Crystal Ceiling Light over Stair Well

expanding civic life and augmenting civic consciousness, but a symbol of the far sighted vision of those who conceived the idea, made that idea possible of realization, and realized it in a form so ponderable and perfect.

It will interest some to know that in this building a few of the theories of proportion contained in "The Beautiful Necessity" by one of the architects of the structure, Claude Bragdon, have been given practical application. Also some of the motifs contained in "Projective Ornament," by the same author, have been worked out in marble, glass, and plaster.

In the great epochs when architecture was a living art, geometry and number were employed not alone in the construction of a building but in its design - for the determination of its principal proportions, exterior and interior, and the proportions of its subordinate parts. The present-day architect appears to be content to forego the advantages of this valuable aid to design. Because it is simple, perhaps it seems to him foolish; but the simple things are the vital things, and these cannot safely be ignored.



DIAGRAMS IILUSTRATING THE EMPLOYMENT OF SIMPLE RATIOS (2:3 AND 3:5) IN THE PLAN AND DESIGN OF THE ROCHESTER CHAMBER OF COMMERCE

DIAGRAMS BY CLAUDE BRAGDON SHOWING APPLICATION OF SIMPLE RATIOS IN DETERMINING PROPORTIONS OF THE ROCHESTER CHAMBER OF COMMERCE

In architecture, the most fundamental thing is unity. Unity is the result of a certain harmony in the relationship of parts which convinces the mind through the eye. This conviction comes most readily when the numerical ratios which express this relationship of parts are simple (of quantitatively low numbers), for then the eye has little difficulty in resolving them.

The sister art of music most admirably illustrates the close relationship between a harmony which is perceived by the senses as beauty and one which is perceived by the eye as order, for all of the principal consonant musical intervals are expressed by ratios of small quantity: 1:2 the octave; 2:3 the fifth; 3:4 the fourth; 4:5 the major third; 5:6 the minor third, and so on.

Applying this principle, the proportions of a room, of a façade, of an opening in the wall, to be "musical" should be capable of being expressed by simple ratios. Accordingly, in the building under discussion, the chamber room and the assembly room express, in the relation of breadth to length, the ratio 3: 5. This ratio also expresses the principal parallelogram of the exterior in its horizontal dimensions. The two major vertical divisions of the exterior, the height from watertable to the top of the belt course at the assembly floor level, and thence upward to the cornice, are expressed by the ratio 2: 3.

Again in the entrance, the total width is to the total height as 5:7, and the architectural "frame" is to the width of the opening which it frames as 2:3. The diagonal of the opening is parallel with the diagonal of the large parallelogram whose horizontal sides are defined by the watertable and the facia of the cornice.

Other ratios are indicated in the accompanying diagrams, and this method of determining proportions has been used generally throughout the building.

The architecture of the building is of what may be called the usual type, conforming in general to the current conventions. Otherwise it would fail to express the conservative spirit of the organization. Yet here and there in the ornament fresh motifs have been introduced, developed from the geometry of four dimensions and from magic paths in magic squares, according to methods described in "Projective Ornament."

For example, the interlace which constitutes the plaster grilles throughout the chamber room is really a magic line of the magic square of three, developed by following with a free hand line, from square to square, the numbers in their natural order. The centerpieces in the glass ceiling lights are "tesseracts" (hypercubes) in plane projection. The pattern of the perforated marble panels which cover the radiators of the vestibule is suggested by a linear design obtained by the symmetrical juxtaposition of four hypercubes.

In studying the design of the building the architects made an interesting use of a model which holds a suggestion of value for obtaining the complete conception of a proposed building in its mass and proportions, and relation in scale to adjoining structures before actual construction. The two illustrations below show how closely actual conditions of site may be approximated. The model was built at scale to conform to the contour of the lot, and through a simple trick of the photographer's art both the model and the site were photographed at the same scale, and the photograph of the model inserted in the photograph of the site. This produced what was to all practical purposes a picture of the completed building, as comparison of the two illustrations will show. By this simple means the design was studied with as much ease and profit as the average architect does his building after it has been completed.





Illustrations of Preliminary Model and Completed Building from Similar Viewpoints

## The Statler Idea in Hotel Planning and Equipment

#### II. THE DEVELOPMENT OF THE TYPICAL FLOOR PLAN

By W. SYDNEY WAGNER Of George B. Post & Sons, Architects

ET it not be inferred, in this discussion of the Statler idea in hotel planning and equipment, that the idea as it is known in this country today, and as exemplified in the plans of the hotel in St. Louis, sprang full grown from the mental brow of the owner. The Buffalo hotel was the embodiment of certain very definite ideas of Mr. Ellsworth M. Statler, based upon a life-long experience and study of hotel operation, as to what constituted proper hotel service. A study of the plans of the succeeding hotels of his company will show that each is a clear consecutive chapter in a long

record of the constant development of these first great ruling principles. It will show that in every instance the basic ideas were sound, and that the development has been in the study and correction of the details of their application, in their ever closer coördination with the architectural principles underlying proper planning, construction, and decoration, and in their adjustment to meet varying local conditions.

The keystone of the Statler idea is Service. It is fully expressed in these few terse sentences from the Statler Service Code:

A HOTEL has just one thing to sell. That one thing is Service.

The Hotel that sells Poor Service is a Poor Hotel.

The Hotel that sells Good Service is a Good Hotel.

It is the object of Hotel Statler to sell its Guests the VERY BEST SERVICE in the world.

This idea is the ruling one from the moment of the conception of a new hotel project, and permeates the policy of construction and operation.

It is the standard by which practically every part of the plan is measured. If an analysis of each of the various parts of the plan results in an affirmative answer to the question, "Will it provide the best service?" then, and then only, is it acceptable as a solution of the particular problem involved. Any

arrangement of plan, however praiseworthy it may be architecturally, if it be essentially at variance with this idea, is rejected.

To attain this standard of service it was necessary to plan for complete coördination of the various parts of the hotel, to reduce the number of these parts to an essential minimum. and then to simplify and to standardize all of the many details of these parts, from the greatest to the most minute.

The Statler idea includes, therefore, as its dominating characteristic, the two great ideas or principles of Simplification and Standardization.

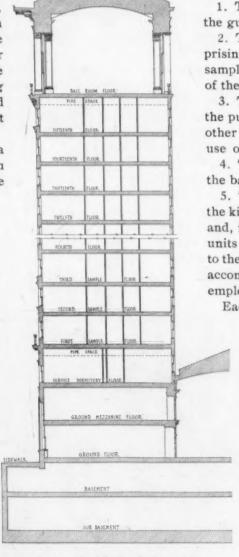
The essential parts of the hotel building can be grouped under five heads, as follows:

- 1. The Typical Floors, comprising the guest bedrooms and parlors.
- 2. The Sample Room Floors, comprising the rooms for the display of samples and for the accommodation of the merchants displaying them.
- 3. The Public Floors, comprising the public lobbies, dining rooms, and other rooms devoted to the general use of the public.
- 4. The Function Floor, comprising the ball rooms and banquet rooms.
- 5. The Service Parts, comprising the kitchen, mechanical departments, and, in short, all of the innumerable units necessary to supply the service to the other four parts, and to provide accommodations and service for the employees.

Each of the first four parts mentioned is planned to deliver to the guest a certain type of service, supplementing, yet differing from, that delivered by every other part. It cannot deliver the best service unless it is planned as a complete unit, with its boundaries well defined, and not merging with those of any other part.

This does not apply to the service parts as a whole, for its various units, functioning everywhere, will be found throughout the building.

A glance at the vertical



Section, Hotel Statler, St. Louis, Mo.

section of the St. Louis hotel will show clearly to what an extent this definition of parts is expressed in the Statler hotels. Here will be found the first great example of the idea of Simplification. In contrast with the usual hotel plans, where one is bewildered by a maze of jumbled units, floors at various levels, and a chaos of pipe spaces, here each of the four essential parts is contained complete in one or

more floors.

This section shows several significant changes in the interrelation of these parts from that of the earlier hotels. Here the female-helps' dormitory floor has been placed directly over the two floors containing the public parts, and under the main shaft of the

Nº 352 9 8 M\*331 N1329 N1301 9-12 MER Haba CIT VE Nº333 Nº 327 N1303 Nº 348 N1335 Nº 325 N1305 N1304 SIN USUR MALIEX N1306 M1337 N1345 N°323 N1307 Nº 346 N\*339 9 N S B N HT344 N1341

Typical Floor Plan, Hotel Statler, Buffalo, N. Y. Esenwein & Johnson, Architects

building formed by the sample room and typical floors. In the earlier hotels it had been the practice to place this dormitory floor at the top of the building directly beneath the roof.

The advantages of the change are many and, after discovery, obvious. It acts as a "buffer" floor between the two parts of the house. It serves the double purpose of dormitory and pipe space, as under its ceiling are located the various large trunk lines of plumbing, drainage, steam, and vacuum piping, ventilation ducts, and electric wiring, formerly placed in a five-foot-deep pipe space above the ceilings of the public rooms. The present arrangement permits of the more economical installation and repair of these lines; the danger of leakage and consequent damage to the costly decorations below is minimized, as not only will the waterproof cement floor of the dormi-

tories hold the water longer, but the fact that this floor is constantly occupied will ensure instant detection, alarm, and quick repair.

The height of the building, as is now usual in most cities, is limited by law, so the saving of height incident to this arrangement of combined pipe space and dormitory floor permits of each typical floor being a little higher from floor to ceiling, and receiving better

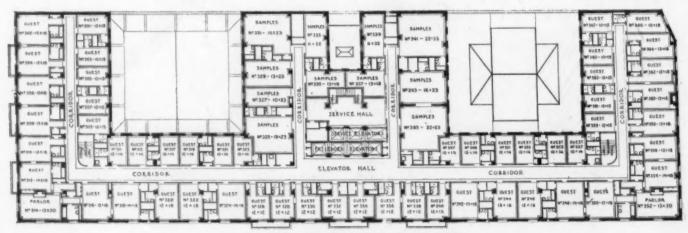
light and air.

The typical floor is the largest single unit of the building, and as rooms constitute the most essential feature of any hotel plan, it is also the most important unit. Nowhere is the expression of the Statler idea more in evidence, more clean cut and characteristic than

in the planning and equipment of these floors. Here will be found the greatest number of examples of the trinity of Service, Simplification, and Standardization.

An examination of the comparative typical floor plans of the four hotels will show the development of these ideas from the time of their first expression in the Buffalo hotel to their latest in St. Louis.

In the first hotel the passenger elevators were separated from the service elevators, but in all of the later buildings these two units were combined in one bank, as it was found that this combination provided better service to the guest through being more convenient for the employees. It brought all of the overhead traction elevator machinery under one roof and one control. On the ground floor it facilitated the service of the correlated departments of the front office, porter, and bell captain.



Typical Floor Plan, Hotel Statler, Cleveland, Ohio Geo. B. Post & Sons, Architects

After a study of many hotel plans it is apparent elevators, corridors, and wings had been determined, to devote exhaustive study to the location of the

structural steel columns. Then, and then only, would the architect begin to adjust and fit the bedrooms and bathrooms around the steel columns, for all the world like a poor tailor fitting a suit of clothes. The result, as in the case of the suit, is usually disappointing.

In the planning of the hotels under discussion, this process was reversed. The rooms and bathrooms were planned in standardized double units to conform to requirements of service, and the spacings of the structural steel columns

and floor beams were then so planned as to become the development of the Statler idea of a bathroom part and servant of this standard arrangement.

This may have involved the use of a few additional pounds of steel. But what was the resulting gain?

A standardized unit, comprising not only the bedrooms and bathrooms, but also the very structure of the building itself, was obtained.

Great simplification in the details of this unit was then possible. The economy affected by the elimination of the many odd corners and patches of furring which were an inevitable consequence of the old method of column dodging alone more than balanced the cost of the extra weight of steel.

More rooms per floor were secured through the saving of space and the greater compactness of the unit.

The architectural expression of the hotel, always that it has been the usual practice in planning the a difficult problem, was now greatly simplified. The typical floor, after the general arrangement of the frantic juggling of the often irreconcilable exterior and interior conditions, resulting from the old arbitrary method of steel design, became unnecessary,

as now the steel structure assumed its legitimate place in the scheme of architectural design.

The writer knows whereof he speaks in this matter, for he has struggled with both methods, and the old one was simply Sherman's definition of war!

The typical floor plan of the St. Louis hotel is the latest, and consequently the best expression of the development of this standardized unit, and in this respect it is approached by no other hotel in the country. This plan shows also

desired.

to every room; here even the parlors of the corner suites are supplied with bathrooms, making it possible to use the parlors as bedrooms if it should be

Typical Floor Plan, Hotel Statler, Detroit, Mich. Geo. B. Post & Sons, Architects

Comparison of the plans will show also the gradual adoption of the inside bathroom, until in the latest house all of them are inside, with the exception of those of the two parlor suites.

There has always been much discussion of the relative merits of the inside and the outside bathroom.

In operation it has been clearly demonstrated that in this type of hotel the well ventilated inside bathroom is far superior to the outside one. In the ventilation of the former the air is always passing from the bedroom by means of a small



Typical Floor Plan, Hotel Statler, St. Louis, Mo. Geo. B. Post & Sons and Mauran, Russell & Crowell, Associated Architects

space left between the bottom of the bathroom door from the bedroom, and giving more wall space and and its saddle, through the bathroom and into the ventilation shaft by means of a register opening in the bathroom wall.

This current of air can always be maintained positive, whereas in an outside bathroom pressure of

air from an open window therein will often reverse this current and force the bathroom odors into the bedroom.

The two outside bathrooms of the parlor suites were provided to meet the occasional demand for this type of bathroom - a demand made, by the way, more often by women than by men.

Another significant development has been the abandonment of the arrangement of the double bathroom unit placed between rooms, as shown

in Scheme A, and typified in the Buffalo plan, and the general adoption of the double unit placed at the back of the bedrooms and between them and the corridor, as shown in Scheme B. The Scheme A arrangement is now used only where property or

planning conditions make it necessary to secure the narrower building wing obtainable by its use.

The reasons for this adaption of Scheme B are many.

By its use the greatest number of rooms per floor can be obtained, always an essential requirement where the height of the building and the area of the property are both limited. Any desired number of these bedrooms can be thrown en suite, whereas, with the former bathroom arrangement, the number was limited to two.

Its use results in a wider building wing, always more economical in construction be-

cause a minimum amount of exterior wall per bedroom is thus secured, and because, in a high building, less steel for wind bracing is required owing to the wing's greater stability.

The small vestibule between the corridor and the bedroom, created by the Scheme B arrangement, is valuable as a transitional entrance to the room, acting as a buffer between the guest and the noises and light of the public corridor at night. In it can be placed the doors to the bathroom and the clothes closet, thus screening the entrance to the bathroom

the possibilities of better furniture arrangement in the bedroom.

The bathrooms are divided into two types, — tub baths for the higher priced street rooms and shower baths for the lower priced court rooms. Each of

these types has been standardized into a typical unit consisting of two bathrooms with a common vent and pipe shaft between them. This shaft is always at least two feet wide and contains all of the main lines of hot and cold water supply, drainage, steam, ice water, and other piping. It serves also as the bathroom ventilation shaft, being connected with a common plenum space under the roof.

The bathroom fixtures are so placed along the wall of

this shaft that instant access can be obtained to their several systems of branch piping by means of a hinged medicine cabinet and mirror frame located above the wash basin and opening into the shaft.

The radiators in the two bathrooms, as well as

those in the two corresponding bedrooms, are placed on the one system of steam line in this shaft. The bathroom radiator is tucked away out of sight under the wash basin, while that in the room is located in the corner adjacent to the shaft.

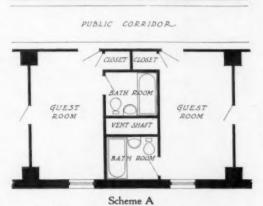
It can readily be seen that this grouping of four radiators on one steam line, in place of two as in ordinary practice, effects a great economy of installation and maintenance in a large hotel.

Endless criticism has been directed against this innovation of placing the radiator against an inside wall, yet

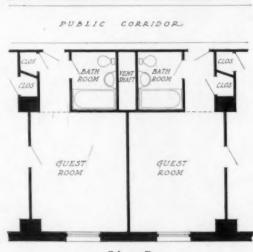
tests in the hotels have shown that, with thermostatic temperature control, there is no appreciable difference in result between this method and the one of placing the radiator under the window.

Many hotels do not provide heat in the bathroom, vet it must be of obvious importance, in these days of the all-year-round outdoor sleeping porch, that a guest, after having slept with his window wide open through the night, should be enabled to jump from his bed into a warm bathroom.

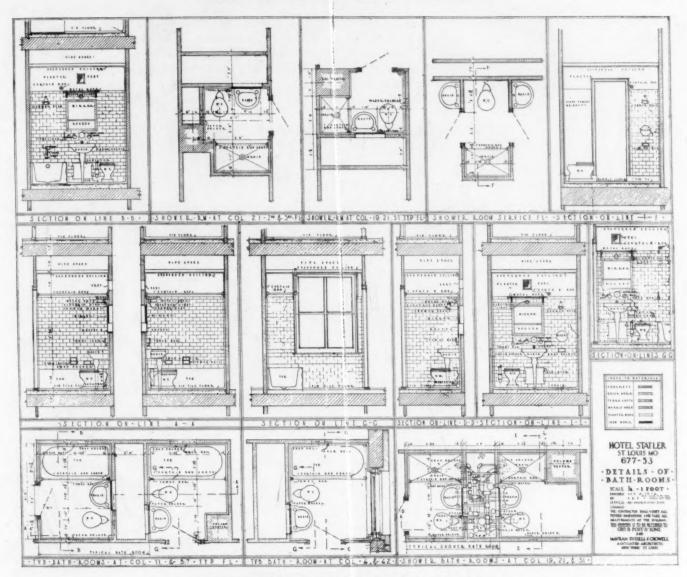
As evidence of the universal application of the



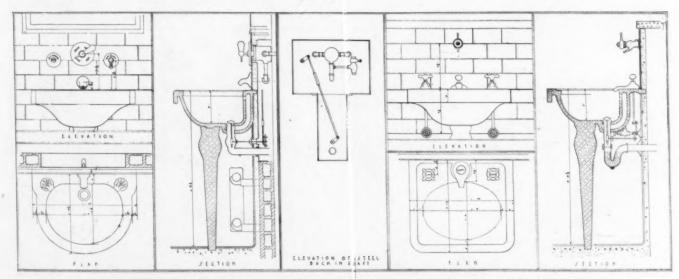
Double Bathroom Unit Between Guest Rooms



Scheme B Double Bathroom Unit Between Guest Rooms and Corridor



DETAIL ELEVATIONS AND PLANS OF TYPICAL BATHROOMS



DETAILS OF LAVATORY FITTINGS FOR GUEST BATH'S AT LEFT AND FOR PUBLIC TOILETS AT RIGHT

HOTEL STATLER, ST. LOUIS, MO.
GEO. B. POST & SONS AND MAURAN, RUSSELL & CROWELL, ASSOCIATED ARCHITECTS

ruling principle of Service, the reproduction in these pages of the detail drawings of the standardized bathroom equipment should prove far more effective than many words. The "running ice water in every room" idea, however, is worthy of special comment, as it is one which has been in use for years

in the Statler hotels. but the importance of which is only now beginning to be recognized by others. Yet its advantages over the old methods of delivering this particular service to the guest cannot be questioned. The water is at hand at the very moment the guest desires it, besides relieving him at the same time, of the irritating necessity of giving the bellboy a disproportionate tip in return for this small service. True.

it does lack the anodynous advantages of "the clink of the ice in the pitcher, as the boy comes down the hall."

This is but one of the many ideas of Service, each one small in itself, yet in their totality forming the major portion of what is known as the "Statler Idea."

Allow me to digress for a moment from the subject proper of this discussion to mention a few of

them which have been widely commented upon.

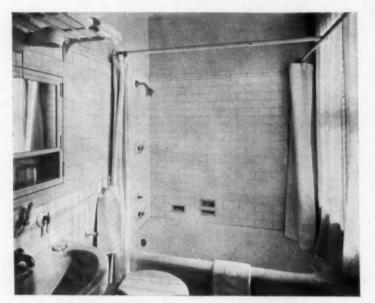
The first that comes to mind is such an obvious one that it recalls the story of the man who exclaimed, "Why, I could have thought of that myself!" It is the revolutionary idea of placing the keyhole in the door above the doorknob instead of

below it, where it had nestled for centuries. There is no need to enlarge upon the many advantages of this simple idea.

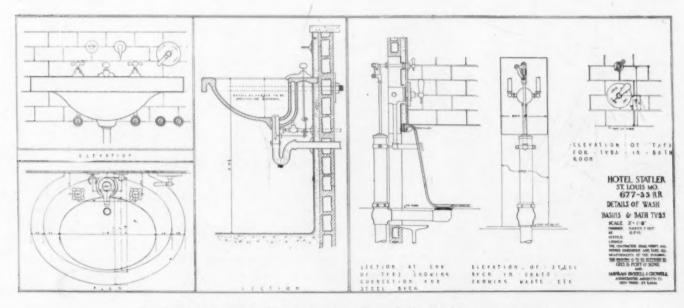
Then there is the idea of enlarging the space between the bottom of the corridor door and its saddle enough to permit of sliding under the door a copy of the morning paper, with the compliments of the hotel printed on its face. And finally, I must mention the classic Statler pin cushion found upon

the dresser of every room, and holding a full supply of first-aid material in the form of needles, thread, pins, and buttons of various sizes and uses.

These few instances are indicative of the constant efforts to give the guest ever a fuller measure of service and to realize the ideal of a complete hotel; it is their expression throughout the plan, equipment, and furnishing which make these hotels worthy of special study.



Detailed View of Typical Bathroom in Hotel Statler, St. Louis, Mo.



Detail of Fittings for Barber Shop Lavatories and Guests' Baths, Hotel Statler, St. Louis, Mo.

## **Emergency Construction**

# ROOF TRUSSES IN WIND TUNNEL BUILDING, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

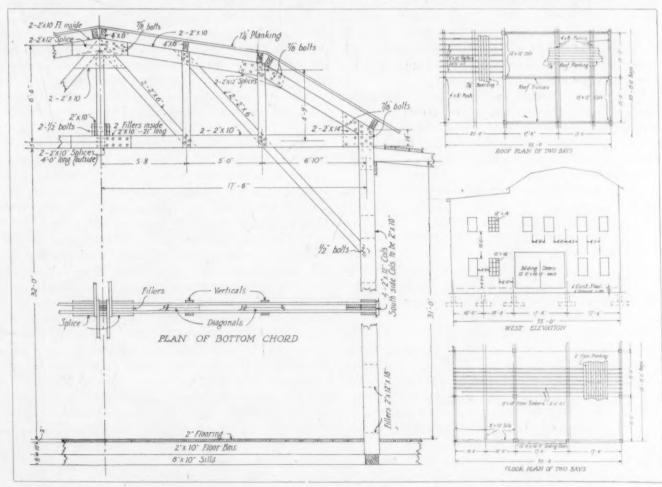
THE emergency building program of the Government and large corporations manufacturing munitions and other war necessities is bringing forth many expedients in the matter of construction that hold a great deal of interest for architects. Many of these buildings, which must be erected rapidly, would be seriously hampered in their construction because of the difficulty of obtaining and transporting the usual building materials were it not for the manner in which architects and engineers have turned to the use of accessible local materials.

An interesting example of this is seen in the Wind Tunnel Building recently erected for use in connection with the Aviation School at Massachusetts Institute of Technology in Cambridge, Mass. This building is entirely of frame construction, 55 feet wide, 150 feet long, and about 42 feet high. Because of the purposes of the building, the interior is without partitions or floors, save for a single dividing partition in the center of the long side.

The roof, shown in detail in the accompanying drawing, is similar in contour to that adopted for aviation hangars and is supported by eleven trusses

which in their construction show unique handling. No timber larger than 2 by 12 plank was used, and the complete truss, including the vertical posts, was built upon the ground and then raised into place. The posts consist of four 2 by 12 inch plank, cut at the top to conform to the first slope of the roof, and filled in at intervals with pieces of timber to insure rigidity. The two planks making up the horizontal members fit in between the members of the posts; the diagonals are the innermost planks, and all vertical pieces are on the outside. In building the trusses, after the different members had been cut to size, the various parts were laid on the ground in their relative order and toe nailed together, and when all had been assembled, were bolted at the intersections, plank splices being used at the points of bearing.

When it is considered that it would be necessary to wait at least two weeks for gusset plates or other steel parts needed, if usual methods had been followed, and that the only material used was 2-inch hard pine planking, and ½ and ½-inch bolts readily obtainable in any market, the saving of time in the erection of the building can be appreciated.



#### EDITORIAL COMMENT

NoW, if ever, is the time when all architects, as well as all local and national societies of architects, should be using every effort to adjust themselves to the trend of the times. Few of the other professions are so intimately affected by changing conditions in the building world. None is more vitally necessary to the welfare of general business, and it is every architect's duty to prove this.

War conditions develop situations so far remote from peace times that many of the business world are slow to awake to a full realization of the needs and possibilities of the times. Architects in particular seem reluctant to grasp opportunities at their door until after some one else walks off with the prize.

Why does not the architectural profession assert itself and demand its place in the sun? Why do architects sit with folded hands while engineers assume the architectural development of the country? Why are so many of the Government buildings erected under the supervision and from the plans of men who are not practising architects? Why do private corporations employ engineers to execute commissions which could be much better done by architects? Why do legislative bodies discount the value of architects' services and minimize the importance of an architect's judgment?

When the profession awakes to a realization that these questions are real and not hypothetical; when each architect sincerely endeavors to realize the point of view which the questions represent, then, and not until then, will the answer be found, and a new spirit pervade the ranks.

The answer is in the attitude of architects toward the business world. They feel, perhaps justly, that their profession forbids any tendency to commercialize their art. Sound as such a theory may be, there is not one of the profession who realizes present conditions who does not deprecate the fact that architects are losing commissions which legitimately belong to them. Nor will this fact be changed so long as existing conditions remain in force.

We believe in architecture as a profession. We believe in the dignity inherent in anything which works to the betterment of the world and its people. We also believe that the profession represents such a wealth of mental development, such a record of marvelous achievement, not only in the realm of pure art, but also in the construction and engineering fields, that its abilities should be recognized.

The world's greatest engineering feats were accomplished by architects. The precedents from

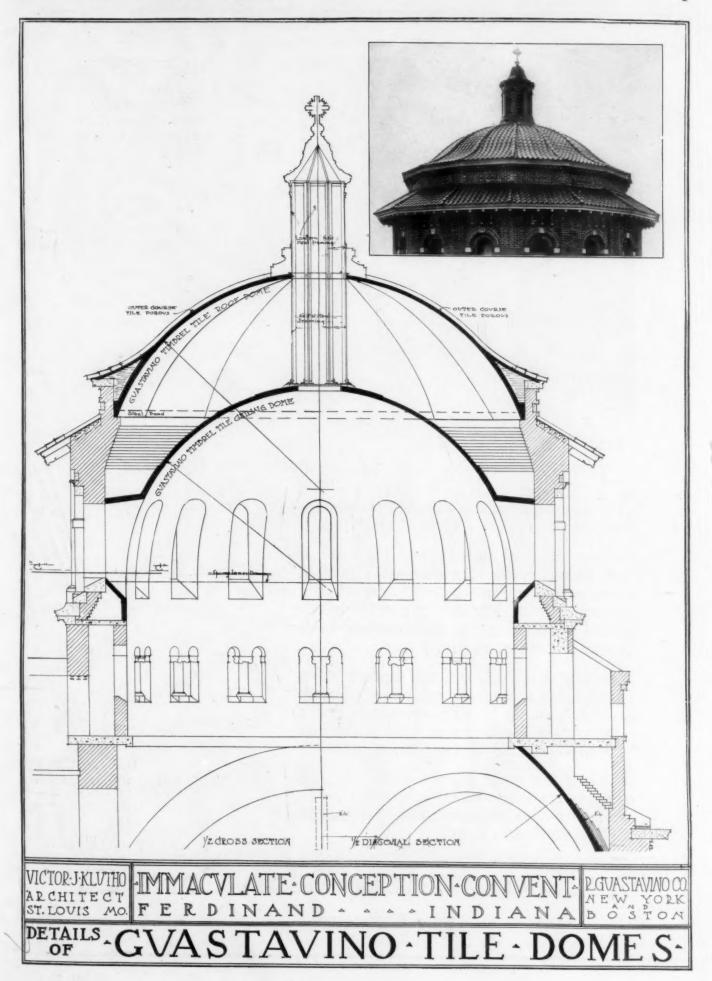
which the engineers derive their inspirations were developed by architects. Unfortunately, however, architects have lost the confidence of the world as to their ability to initiate big projects and have been relegated to the aesthetic side of construction developments, when in the opinion of the business man such extravagance can be condoned. This is not right, and architects should see that it is corrected.

Unquestionably the results obtained by some—not architects—who have designed and built structures are not so good as might have been produced by a trained architect. They may satisfy the practical requirements; they may please the taste of the owner; they do not, however, offer so clear, coherent, artistic, or well constructed a solution of the problem as though built under the supervision of a competent trained architect.

"Trained architect" embraces the knowledge of many subjects, and unfortunately there are too few who meet this standard. The majority of architects are carefully trained in design and general construction, but neglect to learn the intimate details of the other phases of building work. As a result, the experts whom architects are accustomed to consult sooner or later hire their own architectural draftsmen and assume the designing of buildings themselves.

The architects alone are to blame. They have allowed these conditions to come about through their lack of interest in the developments of the day. Now, of all time, however, must they assume a new attitude. History is being made not only by the armed artisans of war, but also by the unarmed artisans of peaceful pursuits. New ideas are coming to the fore every day, and only by being in touch with the situation can architects keep up with progress.

THE ARCHITECTURAL FORUM will make every effort to keep its readers informed of what is transpiring in the architectural field, - the emergency building program of the Government, - the part architects are taking in it, - the new construction methods that are being evolved through the scarcity of steel and the difficulties of transporting materials. These factors are influencing building construction to such an extent that during the course of the war many expedients will be adopted that will find permanent use and with which all will need to be conversant. Absorb all possible information regarding new ideas and new developments; then when peace comes, and with it a tidal wave of building operations, all who are qualified will be able to pick up important commissions without waste of time.





HERE is shown the Dallas Trust and Savings Bank, Dallas, Texas. The Architects are Messrs. Hubbell & Greene; the builders, Watson Company of Dallas.

From grade to skyline this building is faced with Northwestern terra cotta. The plain surfaces are cream enamel, and all the ornament from doorway to cornice is enriched by treating the indentations with warm tan color, as in old ivory.

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Detail from Apartment, Philadelphia. Frederick Webber, Architect



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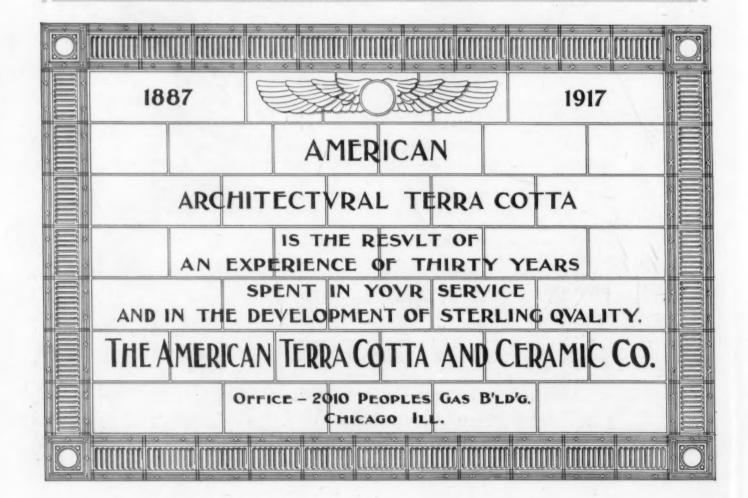
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Now-a-days, however, the progress of indus-

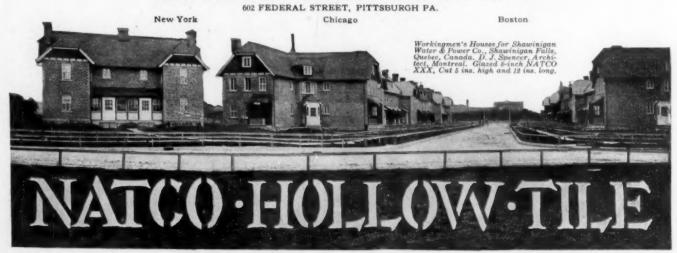
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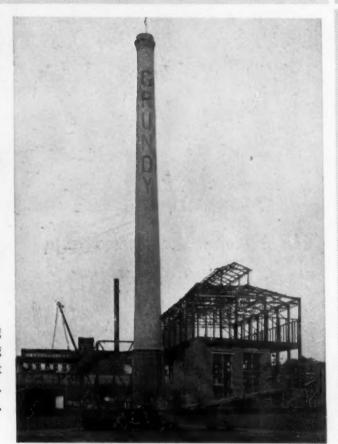
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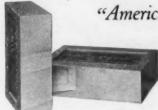
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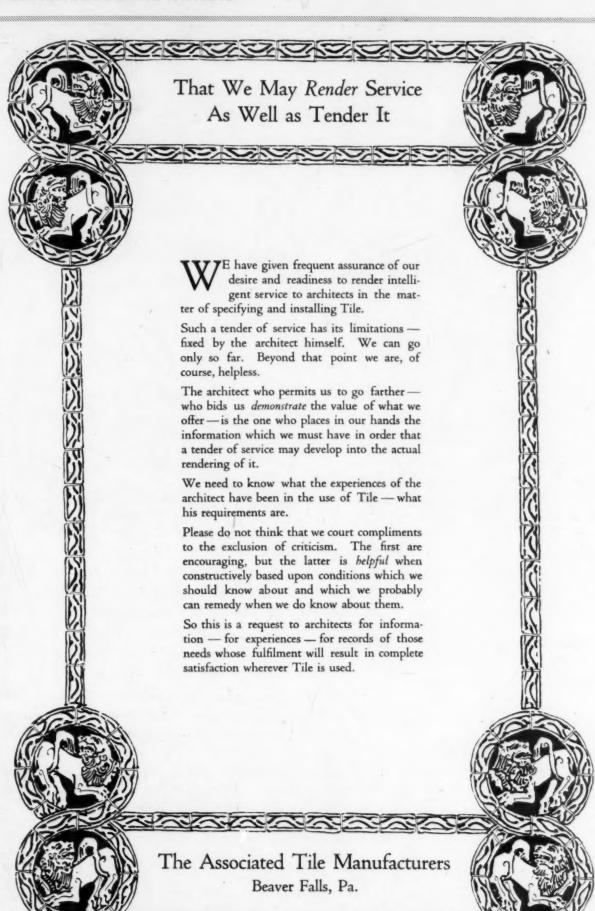


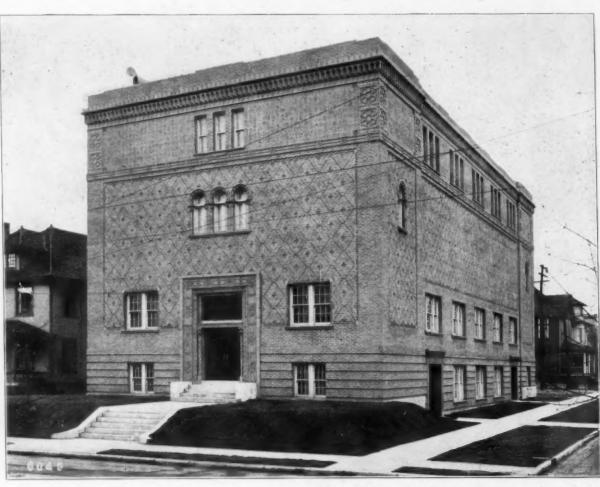
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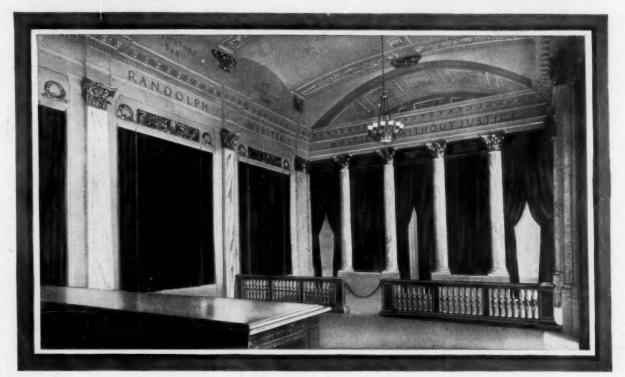
A list of color suggestions is given on "Service Sheet," No. 4, Index No. 18, issued by the Architectural Service Corporation of Philadelphia.

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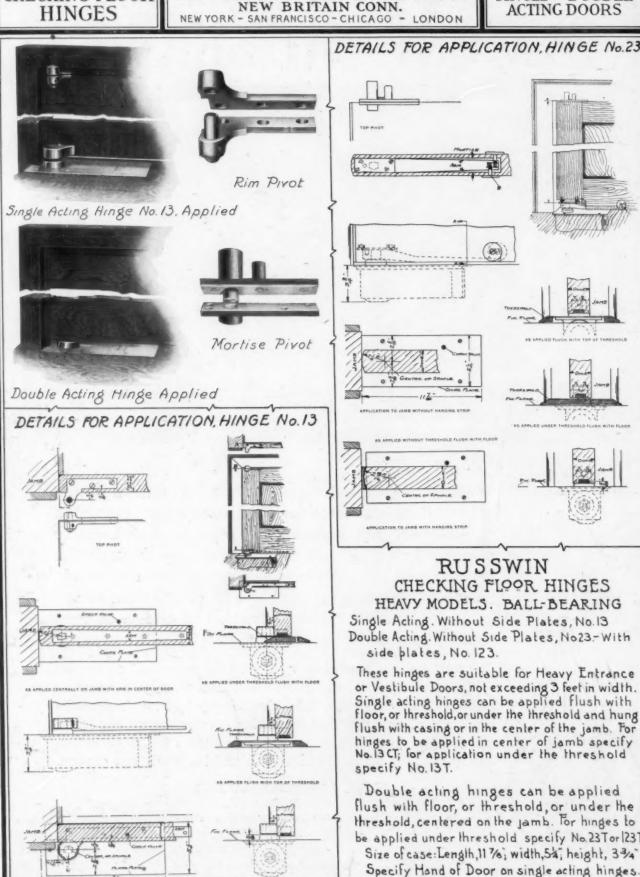
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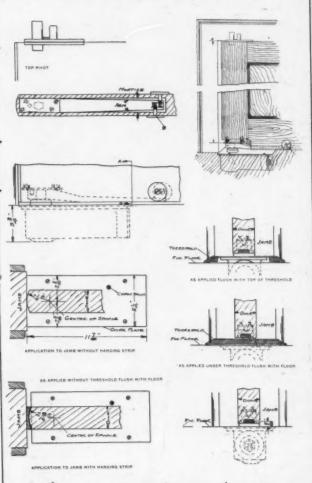
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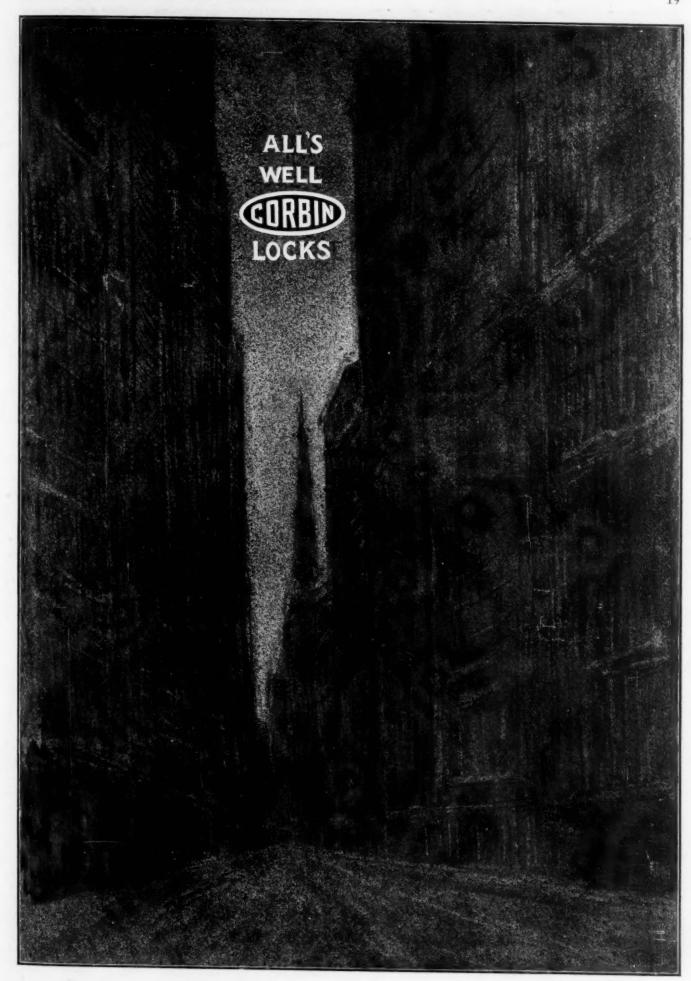


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## Important heating details

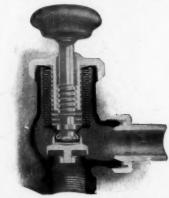


IDEAL Sylphon Steam Regulator—most se sitive and accurate for steam boilers



IDEAL Sylphon Water Regulator for hot water heaters and supply boilers—all metal





for the architect and engineer

These devices have been unqualifiedly approved by thousands of practical tests in the heating industry.

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#### Selected List of Manufacturers' Publications

FOR THE SERVICE OF ARCHITECTS, ENGINEERS, AND CONTRACTORS

The publications listed in these columns are the most important of those issued by manufacturers represented in the advertising pages of THE ARCHITECTURAL FORUM. They may be had upon direct application to the manufacturers.

#### ARCH CONSTRUCTION, TIMBREL TILE

Guastavino Co., R., Fuller Building, New York, N. Y. Portfolio, 10½ x 13½ in. Plates.

American Enameled Brick and Tile Co., 52 Vanderbilt Avenue,

New York.
Enameled Brick. Catalog. 6 x 9% in. 25 pp. Color plates.

Hydraulio-Press Brick Co., St. Louis.

Bonds and Mortars in the Wall of Brick. Treatise on brick design. 8% x 11% in. 27 pp.

Brick Scales and Tables. Fifteen scales for vertical and horizontal measurements, with explanatory booklet and tables. 8 x 10 in. 32 pp.

Moulded and Ornamental Brick. Catalog. 4% x 6% in. 140 pp.
The Brick Church and Parish House. Book of designs with floor plans from drawings submitted in competition. 10% x 13% in. 80 pp.

80 pp.

Sayre & Fisher Co., 261 Broadway. New York.

Brick — Enameled and Front. Catalog. 6 x 9 in. 24 pp. Color

plates.
Everything in Brick. Illustrated. Folder. 7¼ x 9 in.

Western Brick Co., Danville. Ill.
The Art of Stippling. Brochure giving history of development of stippling and its application to face brick. 4 x 6 in. 24 pp.
Where Western Brick Were Used, 1914-1915. Booklet. 4½ x 6 in.

#### BUILDING MATERIALS

Johns-Manville Co., H. W., Madison Avenue. New York.
J-M Building Materials. Booklet. 3½ x 6 in. 24 pp.

#### CEMENT, PORTLAND

Atlas Portland Cement Company, The, 30 Broad Street. New

York.
Handbook and Treatise. Concrete in Factory Construction.
6½ x 8½ in. 250 pp.
Early Stucco Houses, with modern stucco specifications. Booklet.
8½ x 11 in. 24 pp.
Choosing the Garage, describing actual construction. Booklet.
8 x 10½ in. 26 pp.
Commercial Garages. with construction notes and architectural treatment. Booklet. 8 x 10½ in. 12 pp.
Color Tones in Stucco. Booklet with colored plates. 8½ x 11 in. 24 pp. Building a Bungalow. Booklet. 8½ x 11 in. 18 pp. 4 color ncrete on the Farm. Handbook with useful data. 8 x 10 % in.

98 pp.
Lehigh Portland Cement Co., The, Allentown, Pa.
Forty-one Concrete Reasons. Booklet. 6 x 9 in, 34 pp.
Cement Facts. Booklet. 5½ x 6½ in. 18 pp.
The Expense-Proof Farm. Booklet. 6 x 9 in. 100 pp.
Lehigh Portland Cement. Illustrated. Booklet. 8½ x

Sandusky Cement Co., The, Dept. S., Engineers Building, Cleveland. Ohio.
Medusa White Portland Cement. Booklet. 8½ x 11 in. 52 pp.
Medusa Waterproofed White Portland Cement. Booklet. 6 x 9 in. 20 pp.
Medusa Waterproofed Gray Portland Cement. Booklet. 6 x 9 in. 20 pp.

#### CHIMNEYS

Heinicke, Inc., H. R., 147 Fourth Avenue. New York. Chimneys. Bulletin. Methods of construction.

#### CLOCKS, TOWER

Thomas Clock Co., Seth. 19 West 44th Street. New York Descriptive catalog with complete data. 8 x 10½ in. 80

#### CONDUIT

National Metal Molding Co., 1113 Fulton Building. Pittsburgh. Handbook on National Metal Molding. Complete details and installation instructions. 4% x 6 in. 96 pp. Bulletin No. 101. National Metal Moldings and Fittings. 8% x 10 in. 32 pp.

#### CONSTRUCTION, FIREPROOF

General Fireproofing Co., The, Youngstown, Ohio.
Fireproofing Handbook. 6 x 9 in. 112 pp.
Trussed Concrete Steel Co., Steel Building, Dept. 57, Youngstown, Onio.

Truscon Steel Buildings. Catalog containing details and full information. 8½ x 11 in. 24 pp.

Kahn Building Products. Catalog containing tables, details, and complete information. 6 x 3½ in. 100 pp.

#### CONVEYORS, GRAVITY

Otis Elevator Company, Eleventh Avenue and 26th Street, New Otis Gravity Conveyors. Catalog. 6 x 9 in. 56 pp.

#### DOORS, WINDOWS, AND TRIM, METAL

Detroit Steel Products Co., 3117 East Grand Boulevard. Detroit. The Fenestra Line. Catalog. 8½ x 11 in. 15 sections. Blue

Lupton's Sons Co., David, Witte and Tulip Streets. Philadelphia. Pa.
Lupton Service and Products. No. 9. Descriptive catalog with drawings and data for specifications. 8½ x 11 in. 100 pp. and

ver. Light, and Efficiency. Booklet. Daylight illumination as actised in the modern factory building, 6 x 9 in. 50 pp.

Merchant & Evans Co., Philadelphia. Red Book. Catalog. 5½ x 8¼ in. 190 pp.

Trussed Concrete Steel Co., Steel Sash, Dept. 57, Youngstown, Ohio. United Steel Sash. Catalog. Details and specifications. 8½ x 11 in. 128 pp.

Sedgwick Machine Works, 182 Liberty Street, New York. Service Sheets. Standard specifications, plans, etc. 16½ x 21½ in.

#### ELECTRICAL EQUIPMENT

Hart & Hegeman Mfg. Co., The, 346 Capitol Ave., Hartford, Catalog O. H & H Switches and Paiste Wiring Material. 9 x 10% in. 106 pp.

Hart Mig. Co., Hartford, Conn.
"Diamond H" Switches and Receptacles. Descriptive booklet.
4 x 834 in. 24 pp.

#### **ELEVATORS**

Otis Elevator Company, Eleventh Avenue and 26th Street, New York. Otis Electric Traction Elevators. Bulletin. 6 x 9 in. 28 pp. Otis Residence Elevators. Bulletin. 6 x 9 in. 16 pp. Sedgwick Machine Works, 182 Liberty Street, New York Selecting an Invalid Elevator. Booklet. 4½ x 8½ in. 8

#### **ESCALATORS**

Otis Elevator Company, Eleventh Avenue and 26th Street, New Otis Escalators. Bulletin. 6 x 9 in. 36 pp.

#### FAIENCE, ARCHITECTURAL

Rookwood Pottery Co., Cincinnati. Faience Catalog with portfolio of plates. 9½ x 12½ in. 64 pp.

Armstrong Cork & Insulation Co., 132 24th St., Pittsburgh. Linotile Floors. Booklet. 6 x 9 in. 32 pp.

Kennedy, Inc., David E., 55 Fifth Avenue, New York.

Nonpareil Cork Tile. Booklet showing patterns. 3½ x 5½ in.

Nonparell Cork, File. Books. 34 x 5½ in. 4 pp. 34 pp. Folder showing colors of tiles. 3½ x 5½ in. 4 pp. Everlastic Tile. Folder. 3½ x 6½ in. 4 pp. Mas-Oleum Floor. (Mastic Linoleum.) Folder. Specification forms. 7½ x 9 in. 4 pp.

Sonneborn Sons, Inc., L., Dept. 4, 264 Pearl Street, New York. Lapidolith Specifications. Booklet. 8½ x 10½ in. Scientific Investigation of the Action of Lapidolith on Concrete by Prof. R. J. Colony. Booklet.

#### GARDEN POTTERY - See Pottery, Garden,

#### GLASS CONSTRUCTION

Berger Manufacturing Co., Canton. Ohio.
Berger's Raydiant Sidewalk Lights. Catalog T. F. 8½ x 11 in.

Keppler Glass Constructions Inc. Architects Building, 101 Park Avenue. New York. Bulletin No. 126. 8% x 11½ in. 12 pp. Bulletin No. 202. 9 x 12 in. 6 pp. Bulletin No. 203. 9 x 12 in. 4 pp. Bulletin No. 205. 9 x 12 in. 6 pp.

Alphabetical List of Advertisers on Page 12

# Confidence

October 21 Stant Superint Core Pour Pour Pour Concrete

November 13 Stant Floor

November 23 West 11

November 23 West 21

November 23 West 21

November 23 West 21

November 23 October 23

November 24

November 25 October 25

November 25 October

a reinforced concrete building 490 ft. x 60 ft., 4 stories, with a wing at each end 60 ft. square, for the Colt's Patent Fire Arms Mfg. Co.—that was the job undertaken by the Aberthaw Construction Company. So confident were they in the ability of their own Organization and of the firms who assisted them, that they planned to finish each floor on a predetermined date—proclaimed the schedule weeks in advance—and carried it through ahead of time—successfully.

#### The Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.

were confident that the Organization which had furnished another building for them a few months previously could duplicate their performance, perhaps even more rapidly—so they again called on the

#### Aberthaw Company, Boston, Mass.

The Aberthaw Company were confident that there was one Organization which would not fail them in delivery of the necessary 30,000 barrels of cement, in its uniform quality—so they called on

#### The Giant Portland Cement Company 30 Church Street, New York City

The Aberthaw Construction Company were confident that there was one Concrete Pile Organization that would make a flying start and get the necessary 1400 Piles driven in record time—so they called on the

#### Raymond Concrete Pile Co.

New York: 140 Cedar Street



#### SELECTED LIST OF MANUFACTURERS' PUBLICATIONS - Continued from page 22

#### HARDWARE

Columbian Hardware Co., The, Cleveland, Ohio, Making It Easier to Buy Columbian Sash Pulleys. Folder, 3½ x 8½ in- 14 pp.

Corbin, P. & F., New Britain, Conn.
Colonial Hardware. Booklet. 5 x 7 in. 32 pp.
Corbin Door Checks. Catalog. 5 x 7 in. 40 pp.
Corbin Door Knockers. Booklet. 5 x 7 in. 24 pp.
General Catalog. 10½ x 13 in. 1200 pp.

Russell & Erwin Mfg. Co., New Britain, Conn. General Catalog. 9x12 in. 1250 pp. Russwin Period Design Booklet. 6x8 in. 72 pp. Russwin Fire Exit Bolt Catalog. 6x9 in. 46 pp. Russwin Casement Window Hardware. Booklet. 6x9 in. 32 pp.

Kusswin Casement window hardware. Bookiet. 6x9 in. 32 pp.

Stanley Works, The, New Britain. Conn.

Wrought Hardware. Catalog. Describing wrought steel hinges, butts and door bolts. 6% x 10 in. 260 pp.

Stanley's Wrought Steel Garage Door Hardware. Booklet. 3% x 6% in. 8 pp.

Properly Hung Doors. Booklet. 5 x 7% in. 16 pp.

"Stanley" Sherardizing. Descriptive booklet. 3% x 6% in. 4 pp.

Vonnegut Hardware Company, Indianapolis.

Prince Self-Releasing Fire Exit Devices. Catalog with drawings and tables. 8 x 11 in. 36 pp.

Von Duprin Self-Releasing Fire Exit Devices. Catalog 12-F. 8 x 11 in. 45 pp.

Wilkins, George Lester, 7079 North Clark Street, Chicago. Casement Adjuster Data Sheets. Details and full information regarding Wilkins and Security Casement Adjusters. 8½ x 11 in. 12 pp.

Yale & Towne Mfg. Co., 9 East 40th Street, New York. Builders' Locks and Hardware. Catalog No. 22. 9 x 12 in. 350 pp. Door Closing Devices. Folder Catalog. 6½ x 3½ in. 8 pp.

#### HEATING EQUIPMENT

American Blower Co., Detroit, Mich.
"A B C" Heaters. Bulletin. 8% x 11 in. 24 pp.
Vento Cast-Iron Hot-Blast Heater. Bulletin. 8% x 11 in. 44 pp.

Vento Cast-Iron Hot-Blast Heater. Bulletin. 8½ x 11 in. 44 pp.
American Radiator Co., 816 South Michigan Avenue, Chicago.
The Ideal Fitter. Handbook of heating and ventilating specification data. 6½ x 3½ in. 356 pp.
Ideal Smokeless Down Draft Boilers. Booklet. 8½ x 11 in. 24 pp.
Boynton Furnace Co., The, 106 West 37th Street, New York.
Square Pot Heaters. Catalog. 7 x 9½ in. 60 pp.
Crane Co., 836 South Michigan Avenue. Chicago.
Steam Goods. Complete pocket catalog. 4½ x 6 in. 775 pp.

Gorton & Lidgerwood Co., 96 Liberty Street. New York. Modern House Heating. Catalog No. 88. 4½ x 7 in. 32 pp. Jenkins Bros., 90 White Street. New York. Catalog and Price List. 4 x 6¾ in. 256 pp.

Kelsey Heating Co., Inc., The, 238 James Street, Syracuse, N. Y. Architects Portfolio. 12 plates showing plans, heating, specifications, and layouts, 8½ x 11 in.
Kelsey System of Heating and Ventilating. Booklet. 36 pp. Kelsey Warm Air Generators. Booklet. 32 pp.
Lord & Burnham Co., 42d Street Building, New York. Burnham Boilers. Catalog No. 56. 4 x 10 in. 19 pp.

United States Radiator Corporation, Detroit.

A Modern "House Warming." Booklet. 6 x 9 in. 30 pp.
The "Complete Line." Technical data. Catalog. 4% x 7% in.
270 pp.

#### HOISTS

Gillis & Geoghegan, 544 West Broadway. New York.

The G & G Telescopic Hoists (all models). Bulletin. 8½ x 11 in. 16 pp. he G & G Standard 17 x 24 in. Hoisting Cans with Side Handles and Swing Bails. Booklets A and B. 16 pp.

#### HOLLOW TILE - See Tile, Hollow

#### INSULATION

Armstrong Cork & Insulation Co., 132 24th Street, Pittsburgh.
Nonpareil Corkboard Insulation. Scientific treatise. 6 x 9 in. 130 pp.
Nonpareil High Pressure Covering. Scientific treatise. 6 x 9 in.

Cabot, Inc., Samuel, 141 Milk Street. Boston.
Service Sheets. Details of Construction and Methods of Using Cabot's Quilt. 16½ x 21½ in.

Johns-Manville Co., H. W., Madison Avenue. New York. J-M Insulating Materials. Booklet. 3½ x 6 in. 24 pp.

Magnesia Association of America, 702 Bulletin Building. Philadelphía. Pa. Let 85% Magnesia Defend Your Steam. A handbook of heat insulation. Magnesia specifications.

#### JOISTS AND STUDS, PRESSED STEEL

Berger Manufacturing Co., Dept. L. F., Canton. Ohio.

Metal Lumber. Series of technical bulletins 12F especially prepared for architects. 8½ x 11 in. 32 pp.

Ribplex. Bulletin No. 14. 8½ x 11 in. 4 pp.

Trussed Concrete Steel Co., Dept. B-57, Youngstown, Ohio.

Kahn Pressed Steel Construction. Catalog. Complete details and specifications. 8½ x 11 in. 32 pp.

#### LATH, METAL

Berger Manufacturing Co., Canton, Ohio.

Berger's Expanded Metal Lath. Booklet. 3½ x 6 in. 44 pp.
Supplement. 24 pp.

Bostwick Steel Lath Co., Niles, Ohio. Stucco on Truss Loop Metal Lath. Treatise. 6 x 9 in. 16 pp. Typical specifications. Standard specifications forms for stucco on metal lath.

General Fireproofing Co., The, Youngstown, Ohio.
Herringbone Rigid Metal Lath. A complete catalog on Herringbone Metal Lath. 6 x 9 in. 32 pp.

Chicago. Ill.

Kno-Burn Expanded Metal Lath. Treatise on metal lath, with details and specifications. 6x9 in. 52 pp.

"Chanelath" Handbook. Treatise on ribbed metal lath details and specifications of its application to reinforced concrete construction and for plastering. 6x9 in. 64 pp.

Designing Data for Reinforced Concrete Construction. Treatise on type of construction and application of expanded metal for reinforcement. North Western Expanded Metal Co., 934 Old Colony Building,

Trussed Concrete Steel Co., Dept. H-57. Youngstown, Ohio. Hy-Rib Handbook. Specifications. 5½ x 7¾ in. 142 pp.

Wright Wire Co., Worcester, Mass.
General Catalog. Description and full particulars of wire lath, wire fencing, ornamental iron work, elevator cabs, railings, partitions, and grille work. 6 x 9 in. 224 pp.
Wire Lath. Booklet L. Shows where Wright wire lath has been used. 3½ x 6½ in. 16 pp.,

#### LIGHTING EQUIPMENT

Ivanhoe-Regent Works of General Electric Co., Cleveland. Regent Semi-Indirect Lighting Bowls. Catalog No. 108. 8 x 10½ anhoe-Regent Works of General Electric Co., Cleveland. Regent Semi-Indirect Lighting Bowls. Catalog No. 108. 8x10½ in. 48 pp.
Holophane Prismatic Reflectors and Fittings. Catalog No. 800. 4x7 in. 50 pp.
Ivanhoe Metal Reflectors and Fittings. Catalog No. 303. 4x7 in. 50 pp.
Rozelle Color-Decorated Bowls and Shades. Catalog No. 235. 8x10½ in. 16 pp.

Luminous Unit Co., St. Louis.
Brascolite — The Modern Semi-Indirect Lighting System. Catalog No. 5. 8½ x 10½ in. 24 pp.
Brascolite Data. Scientific data sheets. Portfolio. 9 x 11½ in. Blue prints.

Aglites. Folder catalog. All-glass lighting fixtures. 5½ x 8 in.

National X-Ray Reflector Co., 243 West Jackson Boulevard, enicago.

ngineering Data Book. Technical handbook. 6 x 9 in. 125 pp.

lumination from Concealed Sources — How to Plan and Specify
Indirect Lighting. Scientific treatise. 12 x 15 in. 52 pp. 36

detail drawings.

St. Louis Brass Mig. Co., St. Louis.
"Concealite" Catalog A. Lighting fixtures for auditoriums.
banks, show windows, etc., from concealed or semi-concealed
sources. 7% x 10½ in. 20 pp.

METAL LATH - See Lath, Metal.

METAL TRIM - See Doors, Windows, and Trim, Metal.

#### METAL WORK, ORNAMENTAL

Polachek Bronze and Iron Co., John, 480-494 Hancock Street, Long Island City, N. Y. Distinctive Metal Work. Booklet. 8½ x 11 in. 6 pp.

Smyser-Royer Company, 1225 Race Street. Philadelphia. P Portfolio illustrating standards and other exterior 1 fixtures in bronze and iron. 4½ x 10¾ in. 175 plates.

Tuttle & Bailey Mfg. Co., 52 Vanderbilt Avenue, New York.

Special Designs of Grilles and Screens in Bronze, Brass, Iron, and Steel. Catalog No. 66A. 6½ x 10 in. 40 pp.

Williams, Inc., John, 556 West 27th Street, New York.

The Art of the Bronze Founder. Illustrated lecture delivered by William Donald Mitchell. 50 pp.

Winslow Bros. Company, 4600-4700 West Harrison Street, Chicago. P. O. Box No. 803.

Ornamental Iron and Bronze. Illustrations of completed work. 3½ x 11 in, 300 pp.

#### OFFICE SUPPLIES, ARCHITECTS'

Dixon Crucible Co., Joseph, Dept. 224-J. Jersey City. N. J. "Eldorado" — The Master Drawing Pencil. Booklet.

#### ORNAMENTS, PLASTIC

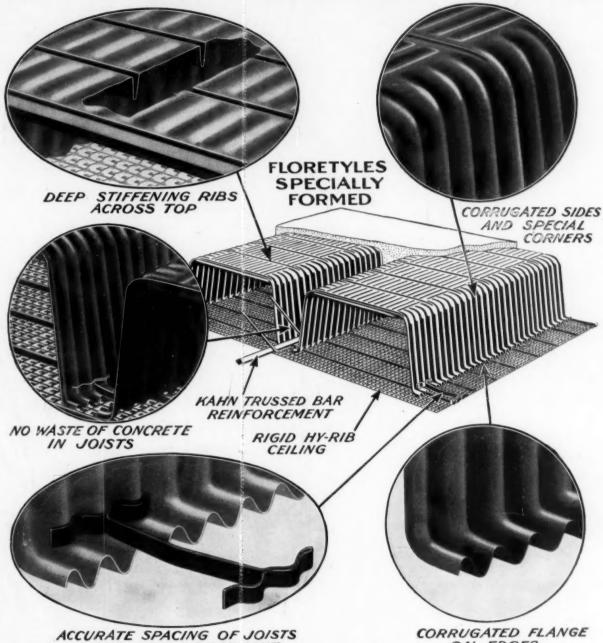
Jacobson & Company, 241 East 44th Street. New York. Architectural and Decorative Ornaments. Catalog. 9¼ x 12¼ in. 192 pp.

The Ehrich Galleries, 707 Fifth Avenue, New York, Catalog of Old Masters. Photos and descriptive text.

#### PAINTS, VARNISHES, AND WOOD FINISHES

Berry Bros., Detroit, Mich.
Natural Woods and How to Finish Them. Complete varnish specifications. 8½ x 11 in. 94 pp.
Luxeberry Cement Coating. Color card. 3½ x 8½ in. 3 pp.

## Only In Truscon Steel Floretyles Do You Find These Exclusive Features



AND REINFORCEMENT

Of scientific design, manufactured under massive dies operated by powerful presses — Truscon Steel Floretyles

effect large savings in labor, material and time, besides increasing the strength and reducing the weight of the construction. This ideal reinforced concrete construction assures flat ceilings of wide span, soundproofness and light weight - the utmost in permanence, simplicity and economy.

Truscon Steel Floretyles have a long record of successful use in important buildings everywhere. Prompt delivery is assured. If interested in building, write for suggestions and catalog.

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Dept. R-57 TRUSSED CONCRETE STEEL COMPANY YOUNGSTOWN

Representatives in Principal Cities

#### SELECTED LIST OF MANUFACTURERS' PUBLICATIONS - Continued from page 24

#### PAINTS, VARNISHES, AND WOOD FINISHES - Continued

Boston Varnish Co., Everett Station. Boston.

Kyanize Enamel. Specifications. Booklet. 5 x 7 in. 20 pp.

Kyanize White Enamel. Directions. Circular. 3½ x 6 in. 8 pp.

Price List of Varnishes and Enamels. 3½ x 6 in. 24 pp.

Bixon Crucible Co., Joseph, Dept. 224-J. Jersey City, N. J.

Philosophy of Protective Paint. 3½ x 6½ in. 24 pp.

Lowe Bros. Co., The, 101 Park Ave.. New York and Dayton.

Architects' Mellotone Handbook. 3 x 8 in. 27 pp. Color plates.

High Standard Paint and Varnish Specifications. Handbook.

4½ x 7 in. 70 pp.

Paint and Painting. Directions and data. 5 x 9 in. 30 pp.

Varnish and Varnishing. Treatise. 5 x 9 in. 44 pp.

Murphy Varnish Co., Newark. N. J.

The House that Found Itself. Booklet. 6½ x 9½ in. 28 pp.

Harmony in Interior Decoration. Booklet. 5½ x 8½ in. 56 pp.

Dealer's Descriptive List. Booklet. 4½ x 6½ in. 28 pp.

Beautiful Boats and How to Care for Them. Booklet. 5½ x 8½

in. 50 pp. o'Brien Varnish Company, The, 49 Washington Street. South

Berd. Ind.

Specification Data. Information concerning O'Brien line of varnishes and interior finishes. 8½ x 11 in.

Smith & Co., Edward, P. O. Box 1780. New York.

Architects' Handbook. Specifications. 5 x 7½ in. 24 pp.

Toch Brothers, Dept. 97, 320 Fifth Avenue. New York.

Specifications for Damp-proofing, Waterproofing, Enameling, and Technical Painting. 8½ x 11 in. 48 pp.

Toch Brothers Preservative Paints and Compounds. Booklet.

5½ x 8½ in. 36 pp.

Wadsworth, Howland Co., Inc., 139 Federal Street. Boston.
Bay State Finishes. Stains, and Varnishes. Catalog No. 10.

#### PARTITIONS, FOLDING AND ROLLING

Folding Partition Co., Inc., 200 Broadway, New York, N. Y. Sectionfold Partitions. Catalog with detail sheet. 20 x 27 in.

#### PILES

MacArthur Concrete Pile and Foundation Co., 120 Broadway. The Pedestal Pile. Catalog. Engineering data. 6 x 9 in. 64 pp.

Raymond Concrete Pile Co., 140 Cedar Street. New York.

Raymond Concrete Piles. Catalog. 8½ x 11½ in. 56 pp.

Byers Company, A. M., 235 Water Street, Pittsburgh.
Bulletin No. 26. Tables and Specifications. Bulletin (2d Edition.
Enlarged and Revised). 8½ x 11 in. 24 pp.
Bulletin No. 27. The Experience of Practical Men. 8½ x 11 in.

40 pp.
On the Trail of Byers Pipe. Booklet. 4 x 6 % in. 46 pp.
Selection of Pipe for Modern Buildings. Booklet of special inter-

On the Trail of Byers Pipe. Booklet. 4 x 6\% in. 46 pp.
Selection of Pipe for Modern Buildings. Booklet of special interest to architects. 4 x 6 in.

Central Foundry Company, 90 West Street. New York.
Soil Pipe and Fittings. Catalog. 4 x 7\% in. 88 pp.
The Lynn Drain Trap. A leaflet containing description.
Combination Vent. Revent, and Drainage Pittings. Catalog.
4\% x 6\% in. 183 pp.

National Tube Company, Prick Building, Pittsburgh. Pa.
Shelby Mechanical Tubins. Booklet. 3\% x 6 in. 35 pp.
Boiler Tubes List No. 6. 1916. Booklet. 4 x 6\% in. 16 pp.
Pipe List No. 5. 1913. Booklet. 4 x 6\% in. 20 pp.
National Bulletins. Nos. 1 to 27. inclusive. 8\% x 11 in.
National Pipe Standards. Booklet. Appendix to 1913 edition.
Tables and Useful Information Pertaining to Tubular Goods.
4 x 6\% in. 400 pp.
National Bulletin No. 25. National Pipe in Large Buildings.
Booklet. Twenty years' progress in building construction, pipe
specifications, engineering data from National Book of Standards and illustrations of many prominent "National" ized
buildings. 8\% x 11 in. 88 pp. 222 illustrations.
The Modern Boiler Tube. Booklet. Describes material, tests, and specifications. 7\% x 8\% in. 40 pp. 4 illustrations.

Hydrated Lime Bureau of the National Lime Manufacturers'
Association, 1506 Arrott Bldg., Pittsburgh.
Standard Specifications for Hydrated Lime Plastering. Pamphlet E. 64 x 94 in. 20 pp.
Better Plastering and Better Acoustics. Bound booklet. 6% x 9% in. 40 pp.

in. 40 pp.

Kelley Island Lime & Transport Co., Cleveland. Ohio.

Specifications for Hydrated Lime Plastering. Booklet. 6 x 9 in. 20 pp.
Hydrated Lime Plaster. Booklet. 6¼ x 9½ in. 12 pp.
The Perfect Finishing Lime. Rooklet. 4½ x 7½ in. 34 pp.
The Inside Walls. Booklet. 3½ x 6½ in. 8 pp.

#### PLUMBING EQUIPMENT

Crane Co., 836 South Michigan Avenue, Chicago,
Plumbing Catalog. 9 x 12 in. 834 pp.

Kohler Co., Kohler, Wis.
Kohler Catalog. Cloth bound. 9½ x 11¼ in. 164 pp.
Kohler of Kohler Book. Catalog. 5½ x 8 in. 68 pp.

Standard Sanitary Mfg. Co., Dept. 4, Pittsburgh. Pa.

"Standard" Catalog. General catalog of "Standard" line.
9 x 12 in. 676 pp.

Standard "Catalog. General catalog of "Standard" line. 9 x 12 in. 676 pp. Standard "Plumbing Fixtures for the Home. Catalog. actory Sanitation. Catalog and scientific treatise. 9 x 12 in.

Factory Sanitation. Catalog and scientific treatise. 9 x 12 in. 36 pp.

Trenton Potteries Co., Trenton. N. J.
Bathrooms of Character. Booklet. 4 x 7 ½ in. 48 pp.
Sanitary Pottery. Monthly house organ. 6 x 9 in. 16 pp. Color plates.

#### POTTERY, GARDEN

Atlantic Terra Cotta Company, 1170 Broadway, New York. Garden Pottery. Catalog. 9 x 12 in. 12 pp.

Goulds Manufacturing Co., Seneca Falls. N. Y.
All Types of Centrifugal and Reciprocating Power Pumps.
Bulletins. 22 sections. 7½ x 10 in. Bound in 8½ x 11 in. cover.
Handy Data on Power Pumping. Bulletin 112. 7½ x 10 in. 24 pp.

American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Copper — Its Effect Upon Steelfor Roofing Tin. Scientific trea-tise. New edition. 8½ x 11 in. 24 pp. Pocket Reference Book. 2½ x 4½ in. 168 pp.

Pocket Reference Book. 2½ x 4½ in. 168 pp.

Barrett Company, The (formerly The Barrett Mfg. Company).

17 Battery Place. New York City.

Barrett's Specification Roofs — 20-Year Guaranty Bond. Looseleaf specifications with details. 8½ x 14 in.

Foundation Waterproofing. Loose-leaf specifications. 8½ x 14 in.

Tylike Shingles with Red or Green Crushed Slate Surface. For residences, etc. Descriptive booklet. 6 x 8 in.

Velvex Creosote Shingle Stains. Descriptive folder showing colors on wood. 3½ x 6½ in.

Royle & Co. Inc. Iohn. 12-2114 Duana Street, New York.

Boyle & Co., Inc., John, 112-114 Duane Street, New York.
Opinions of Practical Builders. Instructions for using Bayonne
Roof and Deck Cloth. Book S. 3½ x 6 in. 24 pp.

Roof and Deck Cloth. Book S. 3% x 6 in. 24 pp.

Carey Co., The Philip, Lockland, Cincinnati.
Architects' Book of Carey Roofing Specifications.

Creo-Dipt Co., 1025 Oliver Street, North Tonawanda, N. Y.
Service Sheet 1. No. 28. Working Drawings of Construction
of "Thatch" Roof. Standard specifications and instructions
for design and construction of same. 16% x 21% in.

General Slate Company, 200 Devonshire Street. Boston.
General Slate Company — Roofing Slate. Booklet. 6 x 9 in. 16

Johns-Manville Co., H. W., Madison Avenue, New York.
J-M Corrugated Asbestos Roofing. Catalog. 6 x 9 in. 32 pp.
J-M Transite Asbestos Shingles. Catalog. 6 x 9 in. 32 pp.
Ludowici-Celadon Company, 104 South Michigan Avenue,

cago. ng Tile. A detailed reference for architects.  $9\% \times 13\%$  in.

106 pp.
Roofing Tile Catalog. 3½ x 9 in. 10 pp.
The Roof Beautiful. Booklet. 6½ x 9½ in. 40
Why Tile Is Best. Booklet. 3½ x 6½ in. 8 pp.

Way Tile is Best. Booklet. 3% x 6% in. 8 pp.

Taylor Co., N. & G., 300 Chestnut Street, Philadelphia.

A Guide to Good Roofs. Booklet. 3% x 5% in. 24 pp.
Selling Arguments for Tin Roofing. Booklet. 6 x 9% in. 80 pp.
Service Sheets. Working drawings showing details of construction of heavy ribbed and standing seam tin roofing; also color suggestions for tin roofs and tables of covering capacity of tin. 16% x 21% in.

Standard Specifications for Tin Roofing Work. 7% x 9 in.

Empire Rolling Screen Co., Inc., Chamber of Commerce Bldg., Rochester, N. Y.
Fli-Bac. Booklet illustrating and describing improved window screens. 4 x 9 in. 8 pp.

#### SHELVING, STEEL

Lupton's Sons Co., David, Witte and Tulip Streets. Philadelphia. Lupton Steel Shelving. Descriptive catalog. 6 x 9 in. 34 pp.

#### STONE

Indiana Limestone Quarrymen's Association, P. O. Box 505. Bedford, Ind.
Indiana Limestone Booklet. General treatise. 6 x 9 in. 40 pp.
Indiana Limestone Booklet. Bank Buildings. 6 x 9 in. 40 pp.
\$12.000 House of Indiana Limestone. (Prize, mention, and other drawings submitted in competition with report of Jurg.) 11 x
14 in. 46 pp.

#### STORE FRONTS

Detroit Show Case Co., 467 Fort Street, West, Detroit, Mich.
Metal Store Front Construction. Handbook. 8½ x 11 in. 32 pp.
With full size blue print details. 16½ x 22 in. folded to 8½ x 11 in.
Kawneer Manufacturing Co., Niles, Mich.
Architects' Portfolio of Details. 17 full size construction plates, loose leaf. 34 x 44 in. Also 17 half size construction plates, bound. 8½ x 11 in.

New Jersey Terra Cotta Co., Singer Building, New York. Store Fronts in Architectural Terra Cotta. Booklet with designs and details. 8½ x 11 in. 24 pp.

#### STUCCO BOARD

Bishopric Manufacturing Co., The, 910 Este Avenue, Cincinnati, Ohio.

The Bishopric Mastic Products. Booklet. 6 x 9½ in. 24 pp. Color plates.

Built on the Wisdom of Ages. Booklet showing methods of using Bishopric Stucco Board. 8½ x 11 in. 48 pp.

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#### TELEPHONE SYSTEMS, INTERIOR

Western Electric Co., 195 Broadway, New York.
Western Electric Interphone Specifications. Handbook. 81 x 11 in. 41 pp.

#### TERRA COTTA, ARCHITECTURAL

American Terra Cotta & Ceramic Co., 2010 Peoples' Gas Buildago. ons for Architectural Terra Cotta and Details of Con-

ing. Chicago.
Specifications for Architectural Terra Cotta and Details of Construction. 14 plates.
Atlantic Terra Cotta Co., 1170 Broadway, New York.
Atlantic Terra Cotta. Monthly publication. 9 x 12 in. 12 pp.
Conkling-Armstrong Terra Cotta Co., Philadelphia.
Ornament and Details of Construction. Catalog. 9½ x 13 in.
Midland Terra Cotta Co., 1515 Lumber Exchange Building.
Chicago.

Chicago.

Stock Terra Cotta. Loose-leaf portfolio. 10 x 15 in. 15 plates.

New Jersey Terra Cotta Co., Singer Building, New York.

The Victoria Building. Booklet. 8½ x 11 in. 10 pp.

New York Architectural Terra-Cotta Co., 401 Vernon Avenue,
Long Island City, N. Y.

Long Island City, N. Y.
Architectural Terra Cotta. Booklet. 8 x 8 % in. 36 pp.

Northwestern Terra Cotta Co., The, 2525 Clybourn Avenue,
Chicago.
Architectural Terra Cotta. Booklet. Showing illustrations of
buildings and details. 8 % x 11 in. 60 pp.
South Amboy Terra Cotta Co., 150 Nassau Street. New York.
Plates of Ornamental Detail and Construction. Portfolio,

#### TILE, HOLLOW

National Fire Proofing Co., 602 Federal Street, Pittsburgh.
Builders' Handbook. Details of construction. 8½ x 11 in. 34 pp.
Blue prints.
Bulletin No. 172. Industrial Housing.
Standard Hollow Tile Fireproof Construction. Bulletin No. 171.
Details, tables. tests. 8½ x11 in. 32 pp. Color plates.
Natco on the Farm. (1917 edition.) Catalog. 8½ x 11 in. 40 pp.

#### TILE, STEEL

General Fireproofing Co., The, Youngstown. Ohio.
Steel-Tile Handbook. Tables, formulas, specifications, etc., for tile floors and concrete work. 6 x 9 in. 32 pp.
Trussed Concrete Steel Co., Dept. R-57, Youngstown, Ohio.
Floretyle Construction. Booklet containing table and full information for specifying. 8½ x 11 in. 16 pp.

#### UPHOLSTERY FABRICS

Chase & Co., L. C., 89 Franklin Street, Boston.
Chase Mohair Velvets. Booklet. Description of fabrics with color reproductions. 9% x 12% in. 10 pp.
Chase Leatherwove. Folder. Descriptive of material and its uses. 3% x 6% in.

#### VACUUM CLEANERS

Western Electric Co., 195 Broadway, New York. Western Electric Vacuum Cleaner. Specifications. Bulletin. Vestern Electric 8% x 11 in. 62 pp.

#### VENETIAN BLINDS

Wilson Corporation, The J. G., 8 West 40th Street. New York. The Lighting and Ventilation of Modern Buildings. Treatise with working drawings. 8½ x 11 in. 12 pp.

Leaflet No. 5. Light Diffusion.

#### VENTILATION

American Blower Co., Detroit, Mich.
American Sirocco Fans and Blowers. Bulletin. 8½ x 11 in. 52 pp.
American Radiator Co., 816 So. Michigan Avenue. Chicago.
"A B C" Steel Plate Fans. Bulletin. 8½ x 11 in. 28 pp.
Ventilation by Vento Heaters. Booklet. 8 x 10½ in. 24 pp.
Clarage Fan Co., Kalamazoo, Mich.
Catalog No. 5. 6 x 9 in. 26 pp.
Globe Ventilator Co., Dept. P. Troy, N. Y.
Booklet. 4 x 9 in. 36 pp.
Ohio Blower Co., The, 3225 Detroit Avenue. Cleveland.
Gospel of Fresh Air. Booklet. 4 x 9 in. 24 pp.

#### WALL BOARD

Carey Co., The Philip, Lockland, Cincinnati. Carey "Ceil-board" for Walls and Ceilings. Specifications 8x11 in. 2 pp.

#### WALL COVERINGS

Standard Oil Cloth Company, Inc., The, Dept. I, 320 Broadway, New York.
Sanitas Modern Wall Covering. Booklet. 5 x 7 in. 28 pp. Color plates.
Hints to Decorators. Booklet. 5 x 7 in. 12 pp. Colored inserts.
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Selling Helps. Booklet. 5 x 7 in. 24 pp.

#### WATERPROOFING

Anti-Hydro Waterproofing Co., 9 Orchard Street, Newark, N. J. (Singer Building, N. Y. C.)
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General Fireproofing Co., The, Youngstown, Ohio. Waterproofing Handbook. 6 x 9 in. 88 pp.

Sandusky Cement Co., The, Dept. S. Engineers' Building, Cleve-Medusa Waterproofing. Booklet. 7 x 9 in. 36 pp.

Sonneborn Sons, Inc., L., Dept. 4, 264 Pearl St., New York.
Concrete and Lapidolith. Treatise on concrete construction and
the use of Lapidolith with it. 5% x 8% in. 20 pp.

Trus-Con Laboratories, The, 1246 Trus-Con Building, Detroit, Mich.
Architects' Handbook. 8½ x 11 in. 36 pp.
Structural Waterproofing. 8½ x 11 in. 52 pp.
Agatex Book. 5½ x 8 in. 18 pp.
Descriptive Price List. 3½ x 6½ in. 24 pp.

Wadsworth, Howland Co., Inc., 139 Federal Street, Boston. Bay State Brick and Cement Coating. Booklet No. 10. Color plates.

#### WATER SYSTEMS

Armstrong Cork & Insulation Co., 132 24th St., Pittsburgh. Drinking Water Systems. Treatise. 6 x 9 in. 48 pp.

#### WINDOWS, CASEMENT

Crittall Casement Window Co., Detroit, Mich. Universal Casements. Catalog No. 15, showing solid steel casement windows. Details. 9¼ x 12 in. 64 pp.

Hope & Sons, Henry, 103 Park Avenue, New York.
Casement Windows. Details and sections. Catalog. 10 x 15 in. asement 187 pp.

International Casement Co., Inc., Jamestown, N. Y.
Casement Windows and Leaded Glass. Catalog. 10 x 14 in.
56 pp. Plates showing 16th century Tudor residences.

#### WIRE FENCES

Wright Wire Company, Worcester, Mass.

Excelsior Rust Proof Fencing. Illustrated and descriptive booklet. 3½ x 6 in. 16 pp.

#### WOOD

Arkansas Soft Pine Bureau, 1120 Bank of Commerce Building, Little Rock, Ark.

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Gum Lumber Manufacturers' Association, 1304 Bank of Commerce Building, Memphis, Tenn.
Red Gum Facts, Catalog. 5½ x 8½ in. 20 pp.
Technical Information about Red Gum. Catalog. 5½ x 9 in. 20 pp.

North Carolina Pine Association, 83 Bank of Commerce Building,

Norfolk, Va. Architects' Reference Book. Booklet. 8½ x 11 in. 16 pp. Color plates. Home Builders' Book. 5 x 9 in. 24 pp. Color plates.

Northern Hemlock and Hardwood Mfr's Assn., 205 F. R. A. Building, Oshkosh, Wis, Hardwood Inspection Rule Book. Handbook. 3½ x 6 in. 107 pp. Beautiful Birch for Beautiful Woodwork. Illustrated treatise. 6½ x 9½ in. 35 pp. Serviceability and Qualities of Birch. Booklet. 8½ x 11 in. 7 pp. Rules for the Inspection of Hemlock Lumber. Booklet. 3½ x 6½ in. 32 pp.

Southern Cypress Manufacturers' Association, 1234 Hibernia Bank Building, New Orleans. Cypress Pocket Library. Covers all uses for cypress. 41 units. 3½ x 5½ in.

Southern Pine Association, Dept. H-22, Interstate Bank Building, New Orleans, La.

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Directions for Furnishing Southern Yellow Pine. Technical booklet. 7 x 10 in. 20 pp.

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White Pine Bureau, 2230 Merchants Bank Building, St. Paul, Minn. Specification Book — Classified Recommended Uses for White Pine. Illustrating the various standard grades and indicating their proper uses. 8% x 11 in. 196 pp.

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Early Wooden Architecture of Andover, Mass. Monograph. Vol. III, No. 2. 8% x 11 in. 16 pp.
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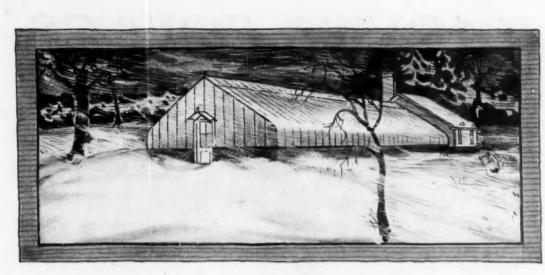


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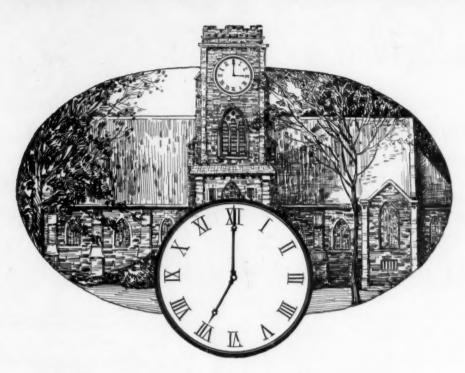
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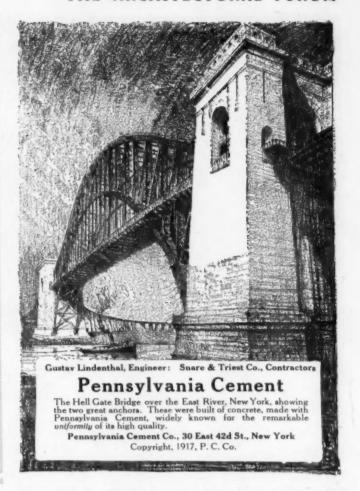
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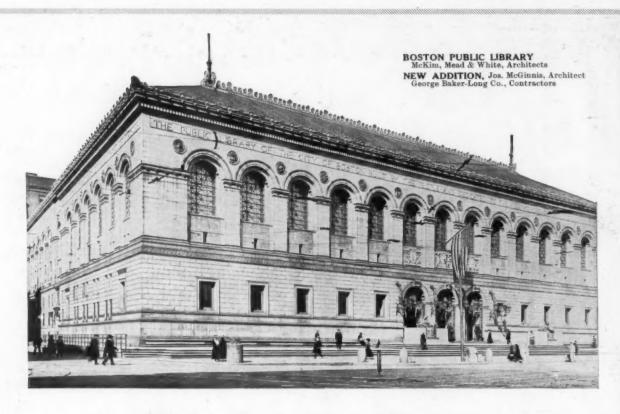
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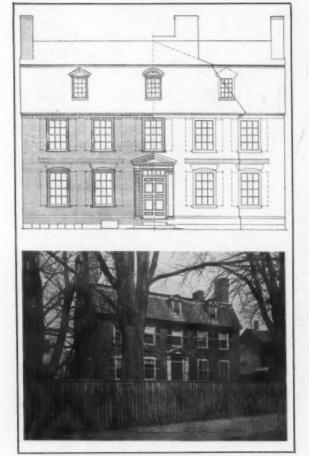
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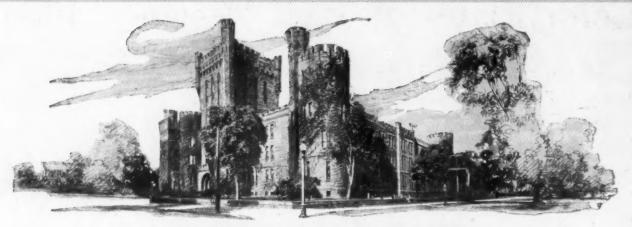
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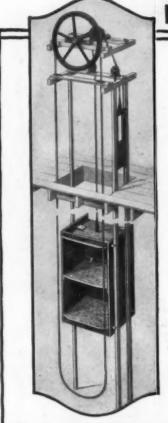
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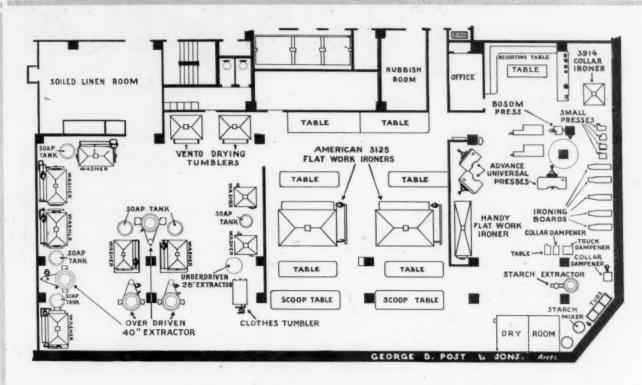
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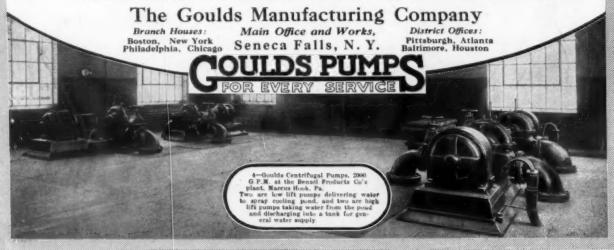
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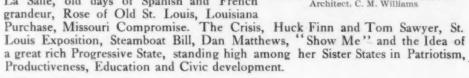
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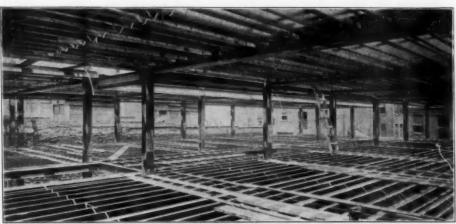
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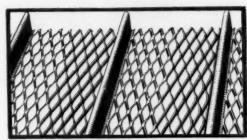
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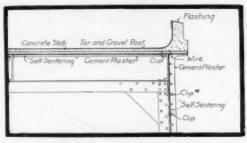
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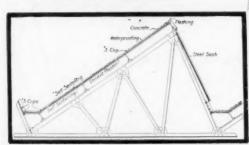
Self-Sentering saves money because it saves material—saves weight — saves time and labor — saves maintenance costs.



SELF-SENTERING



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SELF-SENTERING ROOF

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The details of Self-Sentering floor construction are illustrated at the bottom of the page.

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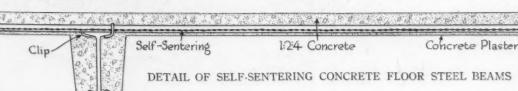
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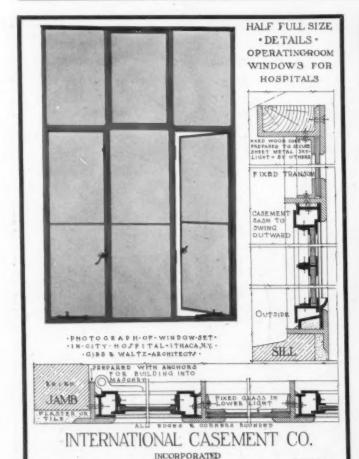
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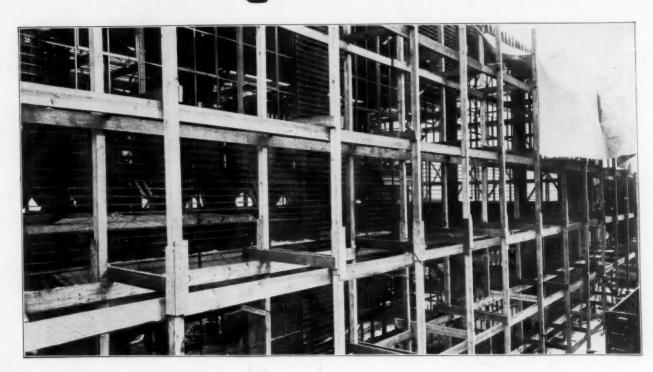
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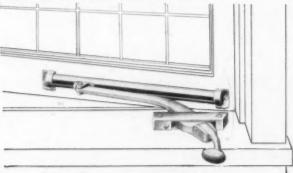
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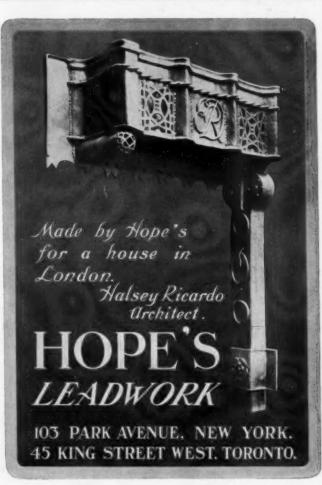


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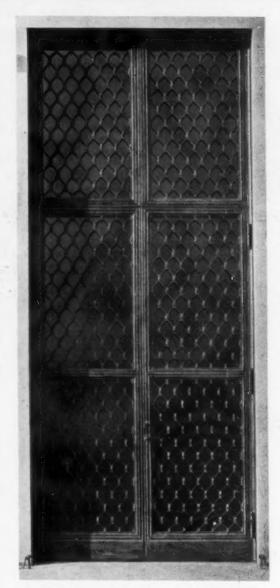
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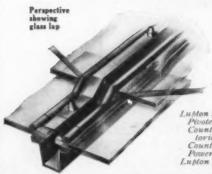
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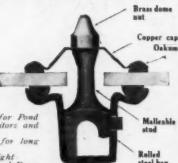
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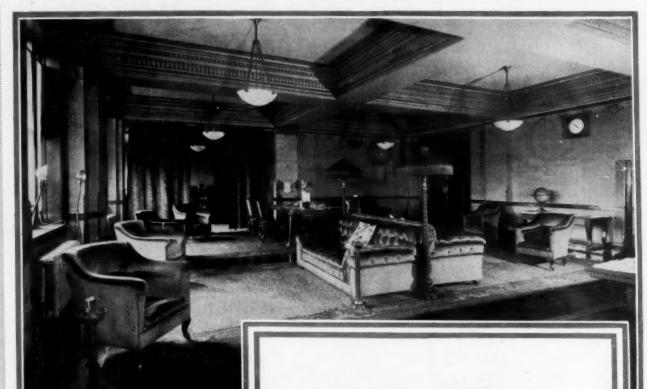
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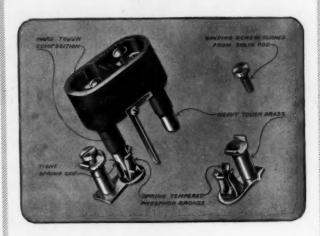
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HE Western Electric Toggle Switch is the latest

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Convenience.—The small neat lever, unobtrusively presenting itself through the small neat plate is the logical means of turning lights on or off. A flip up of the lever, lights, a flip down, extinguishes, both actions the most natural and logical and both the quickest in emergency.

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Let our nearest house explain all the advantages of this switch or ask for Circular S2102

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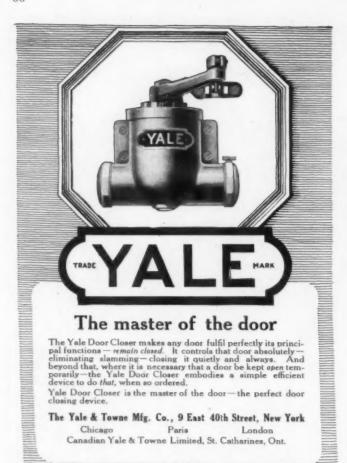
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fully meet the modern demand for a combination of beauty and service. They are worthy representatives of the great "Standard" line of fixtures for Bath, Kitchen, Laundry, etc.

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Is the High Mark in the Steady Development of one Feature of the Company's Branch House Service.

The Exhibit Rooms of Crane Co. serve the people in the Leading Cities of the United States and Canada named below. They are centers where all interested in Building may find what is needed for the Power, Plumbing, Heating, Ventilating, Vacuum-cleaning, Refrigerating, Water, Gas, and other Piping Requirements.

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1855—CRANE CO.—1917

VALVES AND FITTINGS

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Who was the architect of the Dakota Apartments, New York City, erected 1882? Whether living or dead, we would like to find out who he was. Can anybody tell us?

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was installed in the heating system of these apartments, perhaps the largest and finest of their day. The excellent condition of the entire piping system, after 35 years' service, says more for the durability of genuine wrought iron than volumes of scientific discussions on corrosion problems.

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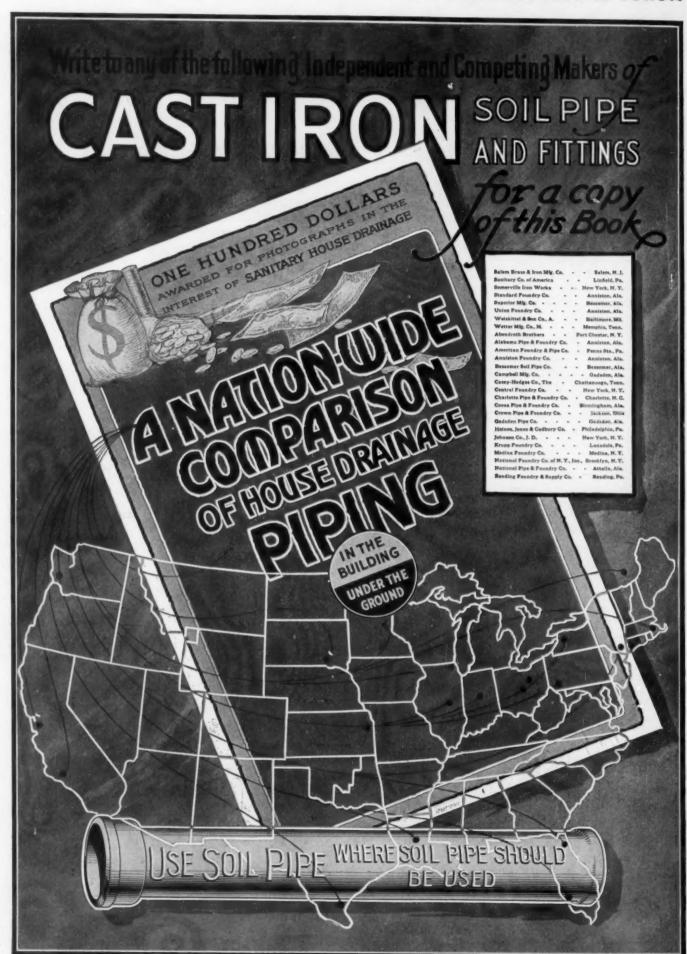
Byers Pipe." It tells about dozens of other famous old buildings — not one of them less than 25 years old — all Byers equipped. Has cheaper pipe any such record?

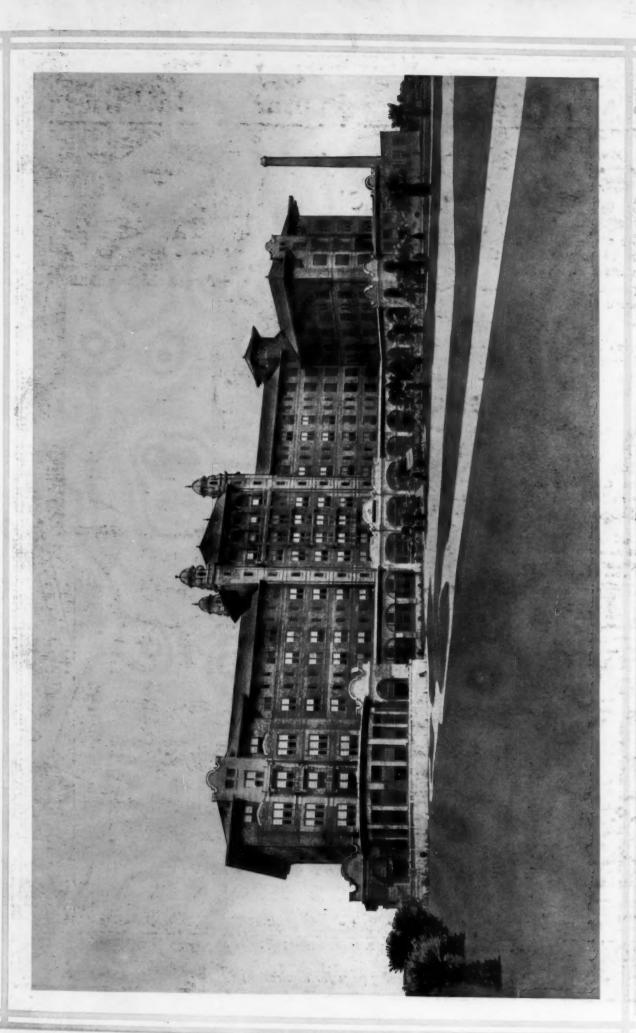
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HOTEL GALVEZ GALVESTON, TEXAS Another "NATIONAL" ized Building—(See following page)

### "NATIONAL" Pipe in Large Buildings



### HOTEL GALVEZ GALVESTON, TEXAS



The architectural development of the "resort" hotel seems little short of marvelous, when memory pictures the sternly utilitarian, square buildings (more frequently frame than brick) that were the usual type previous to the '70's or thereabouts. These just happened; for, as business increased, box-like sections were added onto the original box-like structure.

Certainly these were innocent of architectural design!

¶ It is different today. The Hotel Galvez, in Galveston, Texas, is (so to speak) an antipodal companion to The Traymore, in Atlantic City, N. J. (see pages 39-40 of June issue of this series), and shows, incidentally, the use of "NATIONAL" Pipe in modern hotels from coast to coast.

■This magnificent and imposing structure is one of the distinctive resort hotels in America. It cost a million dollars and is modern in every detail. That "NATIONAL" Pipe—the modern pipe—was specified and installed follows as a matter of course.

Architects who design the modest buildings costing a few thousand dollars, and those whose designs reach the million dollar mark to construct, alike specify "NATIONAL" Pipe as the most suitable for their purpose, for "NATIONAL" Pipe has proved durable (and therefore satisfactory) in all types of buildings.

Complete information about "NATIONAL" Pipe may be found on pages 1339-1351, inclusive, of the 1917 edition of Sweet's Catalogue. This is the tenth of a series of "NATIONAL" ized buildings as follows:

THE UNION ARCADE, Pittsburgh, Pa.
American Architect, Feb. 21st, pages 60-61.
Architectural Forum, March, pages 41-42.
Buildings & Building Management, May, pages 23-24.

THE EQUITABLE BUILDING, New York, N. Y. American Architect, March 21st, pages 19-20. Architectural Forum, April 1st, pages 35-36.

CONTINENTAL & COMMERCIAL NATIONAL BANK BUILDING, Chicago, III. American Architect, May 2nd, pages 21-22.

American Architect, May 2nd, pages 21-42. Architectural Forum, May, pages 45-46. Buildings & Building Management, June, pages 23-24.

HOTEL TRAYMORE, Atlantic City, N. J. Architectural Forum, June, pages 39-40. Buildings & Building Management, July, pages 23-24. JOHN WANAMAKER COMPANY BUILDING, Philadelphia, Pa. Architectural Forum, July, pages 33-34. Buildings & Building Management, August, pages 23-24.

DODGE BROTHERS MOTOR CAR COMPANY MANUFACTURING PLANT, Detroit, Mich.

Architectural Forum, August, pages 37-38.
Buildings & Building Management, September, pages 23-24.
MORMON TEMPLE, Salt Lake City, Utah.

Architectural Forum, September, pages 71–72.
Buildings & Building Management, October, pages 23–24.

SCHENLEY HIGH SCHOOL, Pittsburgh, Pa.
Architectural Forum, October, pages 71-72.
Buildings & Building Management, November, pages 23-24.
MICHIGAN CENTRAL R. R. STATION, Detroit, Michigan.
Architectural Forum, November, pages 71-72.
Buildings & Building Management, December, pages 23-24.



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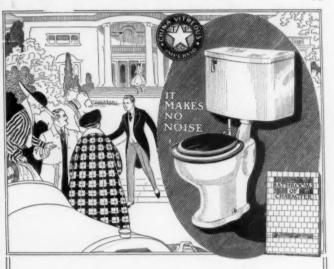
Philadelphia Pittsburgh St. Louis St. Paul Salt Lake City

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(See preceding page for illustration)





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SILENT Si-wel-clo CLOSET

is installed in the home.

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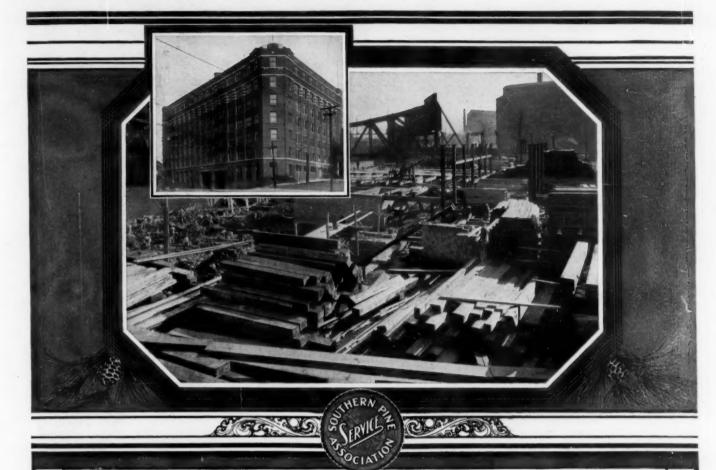
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"The Wood of Service"

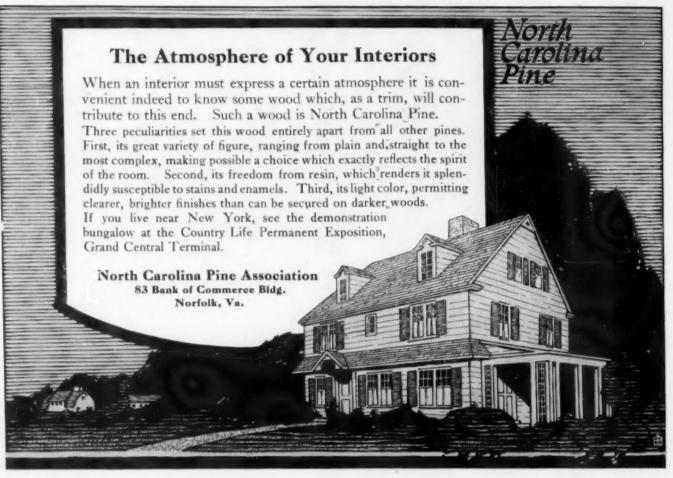
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"SUPERIOR to STEEL in ADAPTABILITY, in WORKABILITY and in AVAILABILITY." (No need to mention Economy-you kn

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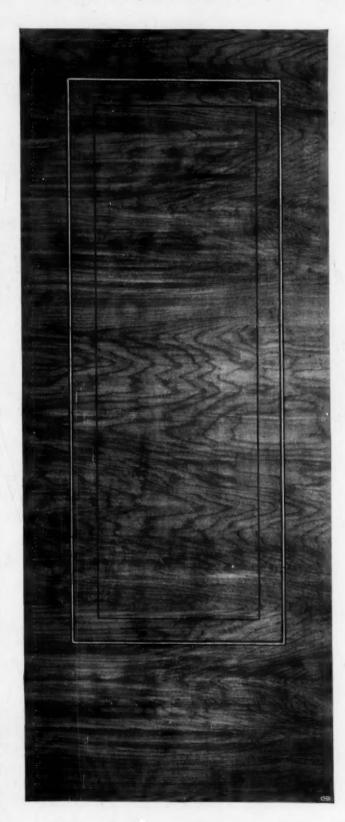
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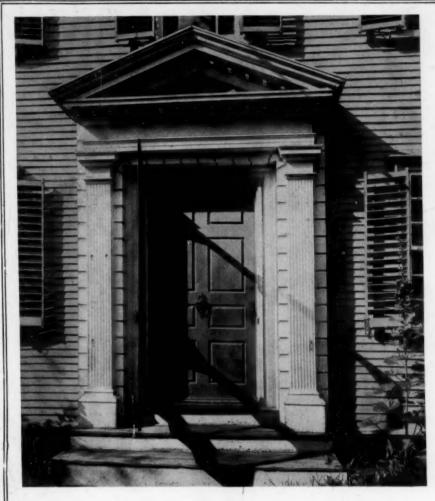
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DOORWAY THE STEARNS HOUSE at Bedford, Mass. Built in 1802. Reuben Duren, Architect.

The front elevation of this house was shown in Vol. 1, No. 2 of the White Pine Monographs.

THREE essentials for success in home-building are—a practical plan, artistic design and good workmanship.

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To treat their creations with inferior finish, to permit cheap varnish to cover and soon ruin them, to leave the job to those who have no enduring interest in it, is like abandoning a child to shift for itself.

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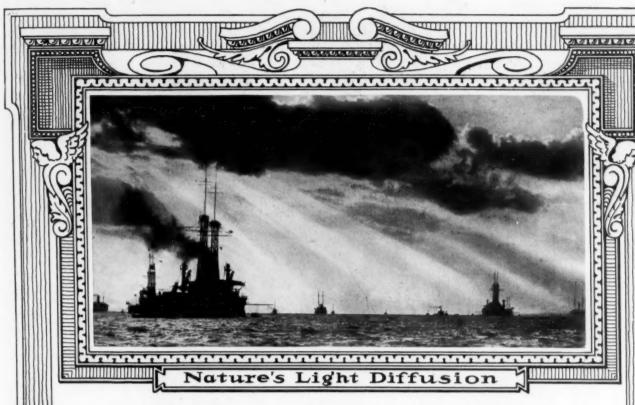
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Claude Bragdon } Assoc Archs

# Keppler Crystal Ceilings





Cincinnati Golf Club House

Architects, Elzner & Anderson

### A Stucco "Job" That Lasts

Look at the illustration below of Bishopric Board. Note how the Stucco is dovetailed into the lath. The Stucco and Bishopric Board are practically welded together into one solid piece. The Stucco can't let go—it's clinched to the lath. The lath are creosoted, imbedded in Asphalt Mastic on a background of heavy fibre-board. Nails through each and every lath hold the Stucco Board firmly to the framework. For details see Service Sheets published by the Architectural Service Corporation, Philadelphia.

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Bishopric Board is making Stucco finish more popular. It is providing a background that is dependable—

that prevents unsightly cracks and breaks and that gives added life to the entire structure.

That is why Bishopric Board was chosen for the Cincinnati Golf Club House shown above — why architects, contractors, builders and owners all over the country, who take the trouble to investigate its merits, specify and use Bishopric Board.

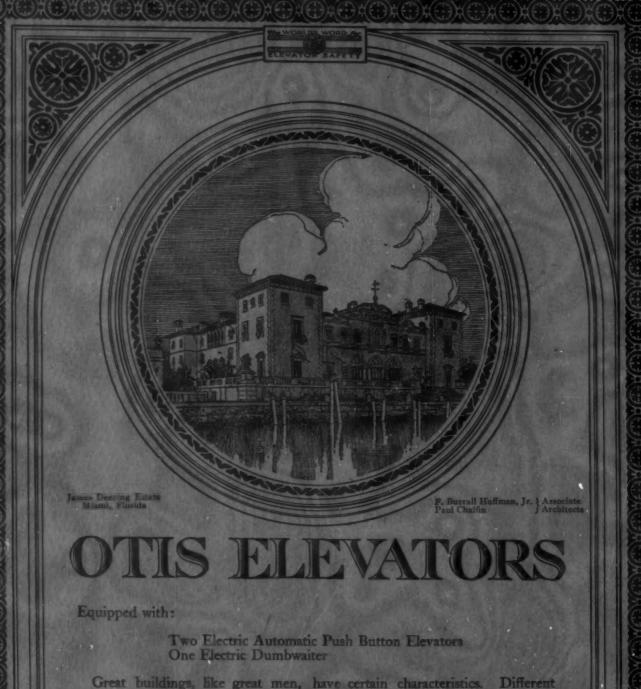
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